[H.A.S.C. No. 113–95]

HEARING

ON

NATIONAL DEFENSE AUTHORIZATION ACT FOR FISCAL YEAR 2015

AND

OVERSIGHT OF PREVIOUSLY AUTHORIZED PROGRAMS

BEFORE THE

COMMITTEE ON ARMED SERVICES
HOUSE OF REPRESENTATIVES
ONE HUNDRED THIRTEENTH CONGRESS

SECOND SESSION

SUBCOMMITTEE ON TACTICAL AIR AND LAND FORCES HEARING

ON

FISCAL YEAR 2015 NAVY, MARINE CORPS, AND AIR FORCE COMBAT AVIATION PROGRAMS

HEARING HELD
MARCH 26, 2014

U.S. GOVERNMENT PRINTING OFFICE

87–858 WASHINGTON : 2014

For sale by the Superintendent of Documents, U.S. Government Printing Office,
http://bookstore.gpo.gov. For more information, contact the GPO Customer Contact Center,
U.S. Government Printing Office. Phone 202–512–1800, or 866–512–1800 (toll-free). E-mail, gpo@custhelp.com.

SUBCOMMITTEE ON TACTICAL AIR AND LAND FORCES

MICHAEL R. TURNER, Ohio, *Chairman*

FRANK A. LOBIONDO, New Jersey
JOHN FLEMING, Louisiana
CHRISTOPHER P. GIBSON, New York
JON RUNYAN, New Jersey
PAUL COOK, California
JIM BRIDENSTINE, Oklahoma
BRAD R. WENSTRUP, Ohio
JACKIE WALORSKI, Indiana
MAC THORNBERRY, Texas
WALTER B. JONES, North Carolina
ROB BISHOP, Utah
BRADLEY BYRNE, Alabama

LORETTA SANCHEZ, California
MIKE MCINTYRE, North Carolina
JIM COOPER, Tennessee
JOHN GARAMENDI, California
RON BARBER, Arizona
DANIEL B. MAFFEI, New York
JOAQUIN CASTRO, Texas
TAMMY DUCKWORTH, Illinois
WILLIAM L. ENYART, Illinois
PETE P. GALLEGO, Texas
MARC A. VEASEY, Texas

JOHN SULLIVAN, *Professional Staff Member*
DOUG BUSH, *Professional Staff Member*
JULIE HERBERT, *Clerk*

CONTENTS

CHRONOLOGICAL LIST OF HEARINGS

2014

WEDNESDAY, MARCH 26, 2014

FISCAL YEAR 2015 NAVY, MARINE CORPS, AND AIR FORCE COMBAT AVIATION PROGRAMS

STATEMENTS PRESENTED BY MEMBERS OF CONGRESS

WITNESSES

APPENDIX

FISCAL YEAR 2015 NAVY, MARINE CORPS, AND AIR FORCE COMBAT AVIATION PROGRAMS

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
SUBCOMMITTEE ON TACTICAL AIR AND LAND FORCES,
Washington, DC, Wednesday, March 26, 2014.

The subcommittee met, pursuant to call, at 1:37 p.m., in room 2118, Rayburn House Office Building, Hon. Michael R. Turner (chairman of the subcommittee) presiding.

OPENING STATEMENT OF HON. MICHAEL R. TURNER, A REPRESENTATIVE FROM OHIO, CHAIRMAN, SUBCOMMITTEE ON TACTICAL AIR AND LAND FORCES

Mr. TURNER. Call to order the Subcommittee on Tactical Air and Land Forces.

I want to apologize for being late. I was doing the important people's work of being on the House floor congratulating the University of Dayton, which is in my community, and which I am alumnus, on entering the Sweet 16, and wishing them well on their game tomorrow night.

But, this committee meets here today to receive testimony on the Navy, Marine Corps, and Air Force budget requests for combat aircraft programs for fiscal year 2015.

Our hearing today will consist of two panels. In the first panel, we will hear testimony on the F–35 program, and the second panel will consist of Navy, Marine Corps, and Air Force acquisition and requirements official, who will provide testimony on the services' combat aviation programs.

On the first panel, we welcome Lieutenant General Christopher Bogdan, F–35 Program Executive Officer, and Mr. Michael Sullivan, Director of Acquisition and Sourcing, Government Accountability Office [GAO].

The second panel, our witnesses are: Vice Admiral Paul Grosklags, Principal Military Deputy to the Assistant Secretary of the Navy (Research, Development, and Acquisition); Lieutenant General Robert Schmidle, Deputy Commandant of the Marine Corps for Aviation; Rear Admiral Michael Manazir, Director of the Air Warfare Division for the U.S. Navy; Dr. William LaPlante, Assistant Secretary of the Air Force for Acquisition; and Lieutenant General Burton Field, Air Force Deputy Chief of Staff, Operations, Plans, and Requirements.

I thank you all for your service and your testimonies today.

We have a number of issues to cover today. But my opening remarks will focus on the F–35 and budget reductions in the Navy, Marine Corps, and Air Force budget requests.

The F–35, a fifth-generation fighter, is required to achieve the effects necessary to win in an integrated anti-access/area denial [A2/AD] environment. Over the last year, slow but steady progress was achieved in development, production, and operations. The F–35 did well in testing last year, but with about one-half of flight testing completed. Much testing remains to demonstrate and verify its performance.

This year, as was the case last year, F–35 software development is still of particular concern. The GAO's primary concern is that software development may be taking longer than expected, resulting in a potential delay of initial operational capability for the three F–35 variants.

The Subcommittee on Air and Land Forces also shares that concern. And for the fiscal year 2014 National Defense Authorization Act [NDAA], the subcommittee included a provision that would require an independent team to review the F–35 software development program and provide recommendations for improvement. This provision was adopted by the House-Senate Conference Committee and included in the fiscal year 2014 National Defense Authorization Act. We expect the Department of Defense to send us that report no later than June of this year.

This is an area the subcommittee continues to watch to ensure that the final software block of the development phase is completed on schedule. While the capability of the F–35 is needed for the future, the Air Force, Navy, and Marine Corps cannot ignore the modernization and life extension upgrades for their legacy fleets of AV–8Bs, FA–18s, F–15s, and F–16s, and the sustainment of those fleets.

As most of you know, I didn't support the Budget Control Act [BCA] of 2011. But now, unfortunately, the effects of this act and sequestration have become apparent in this budget request which will reduce both capacity and capability in our Strike Fighter forces, resulting in higher risk in achieving military objectives in the future.

Last year, the fiscal year 2015 through 2019, the Navy anticipated procurement of 69 F–35Cs. This year, the Navy's budget plans for only 36, a 52 percent reduction. These F–35C procurement reductions have resulted in an increase in the Navy's Strike Fighter shortfall, from 18 last year to 35 this year, in the 2023 timeframe. With fewer F–35Cs, the Navy Strike Fighter fleet will be less capable.

For the Air Force, budget reductions have required the Air Force to lower its F–35 procurement in fiscal years 2015 from 30 to 26, a 13 percent reduction. Additionally, the Air Force proposes retirement of the entire A–10 fleet, and 51 F–15Cs in the Future Years Defense Program. While the Air Force did not report a Strike Fighter shortfall last year, this year the Air Force projects that it will have a shortfall of 175 Strike Fighter aircraft in fiscal year 2019, 9 percent below its required inventory of 1900 Strike Fighter aircraft.

The Air Force has also proposed the termination of the F–16's Combat Avionics Program Extension Suite, or CAPES. CAPES would equip the block 40, 42, 50, and 52 fleets with new radars and defense systems that increase survivability against emerging

threats. Without CAPES, the Air Force F–16 fleet will be less capable.

I look forward to the testimony today of our witnesses, and I hope that they will be able to expand on the risks associated with the capacity and capability reductions in our combat aviation forces.

And, with that, I would like to recognize my good friend and colleague Loretta Sanchez.

STATEMENT OF HON. LORETTA SANCHEZ, A REPRESENTATIVE FROM CALIFORNIA, RANKING MEMBER, SUBCOMMITTEE ON TACTICAL AIR AND LAND FORCES

Ms. SANCHEZ. Thank you, Mr. Chairman. Thank you, gentlemen, for being before us today.

Today's hearing will focus on fiscal year 2015 Navy, Marine Corps, and Air Force requests for tactical aircraft development, modifications, and procurement. And like almost all the parts of the DOD [Department of Defense] budget, there are significant reductions and changes being proposed in this area because of the decline in the overall funding picture. However, it is important to remember that today the United States remains the only country that can deploy and maintain thousands of combat aircraft almost anywhere in the world.

The U.S. Navy and the Marine Corps total tactical aircraft fleet alone, is larger than almost any other nation's entire air force. In addition, the United States also remains the world's leader in tactical aircraft technology, including stealth, unmanned aircraft, engine performance, electronic warfare, precision-guided weapons, et cetera, et cetera.

So it seems that the critical question for today's hearing is how the 2015 budget proposal affects the United States current dominance in the area of air warfare. And I think that this—that is one of the subcommittee's most important roles, is trying to maintain our advantage with respect to that.

Also want to note that complex aircraft programs take a long time to come to fruition, and so whatever we do today is going to impact what we look like in the future. And making the right investments of course may not pay off for a decade or more.

For example, it was investment decisions by the DOD and Congress in the 1970s that allows us to have a highly effective F–16 and F–18 aircraft still in the Air Force and the Navy today. In the time, there were many critics of that aircraft. They were said to be too expensive, too complicated, unaffordable to maintain, and to be sure, in both cases, it took time to get the aircraft as capable as they are today.

And I want to say that because eventually we fix the problems and, of course, these are some of our most important tactical fighters today. And I think it is important to see that as we look at this F–35 program, which is what this first panel is going to be about. Because the F–35 also has many critics, and this program is very complex. And we have earlier versions flying today that aren't as reliable as we would like them to be, don't meet all the capability goals that we need.

But we need to figure out whether they are on the right trajectory to ensure that we have the right product for our men and women in the military, especially keeping in mind the history, for example, of the F–16 and the F–18.

So we have to make decisions today on the F–35 that will impact the Air Force, the Navy, and the Marine Corps in the 2020s and the 2030s and maybe beyond, and at the same time we have to ensure that taxpayer funds are used correctly. And so I am really looking forward to this presentation today and this give and take, because this is a highly complex program.

And, of course, the second panel on today's hearing will focus on all the other tactical and intelligence aircraft programs beyond the F–35, and there are a lot of pressing issues there also. One of them is the fate of the A–10 aircraft, for example. The Air Force is proposing to retire all 283 A–10s over the next 5 years. But in most cases, they propose to replace them with F–16s or F–35s or other aircraft.

And, you know, production line of the F–18 is—which is scheduled to close in 2016, some in Congress are proposing that we procure more EA–18G Growler electronic warfare aircraft. But it comes at a very high price, and the Navy may not need more of these aircraft if it ends up eliminating an aircraft carrier and an associated wing, for example.

And, finally, this subcommittee has to consider the whole arena of unmanned aircraft, the ones we fly today and the ones we have for the future. You know, we had the Global Hawk on the cutting block recently and it was kept in, and now the reversal is taking place. Now we want to retire the U–2 in 2016 and keep the Global Hawk. So both aircrafts have different advantages to them. I look forward to hearing from the Air Force, why they have gone in this direction, for example.

So, Mr. Chairman, I think this is going to be a very interesting hearing.

Thank you.

Mr. RUNYAN [presiding]. Thank the ranking member.

And with that, I now recognize General Bogdan for his oral testimony.

STATEMENT OF LT GEN CHRISTOPHER C. BOGDAN, USAF, PROGRAM EXECUTIVE OFFICER FOR THE F–35 JOINT PROGRAM OFFICE

General BOGDAN. Thank you, Congressman.

Congressman and Ranking Member Sanchez and distinguished members of the committee, thank you for the opportunity to address this committee and discuss the F–35 Lightning II program today. Over the past few years, we focused on creating and maintaining a realistic program baseline for DOD's largest acquisition program. And despite a turbulent past, the program is making slow but steady progress on all fronts to include technical improvements and driving costs out of the program. I believe the F–35 program is headed in the right direction now, and I am confident in our ability to meet U.S. Marine Corps initial operating capability and Air Force initial operating capability in the summers of 2015 and 2016, respectively, with all the capabilities our warfighters need.

We are now seeing the benefits of a disciplined systems engineering process that we instituted a few years ago in response to many of our technical issues, including improvements in the helmet, the hook, our fuel dump capability, weapons capability, lightning protection, and night and all-weather flying. We are closely managing F–35 on-board and off-board software, and software still remains the number one risk on the program.

We have also fundamentally changed the way we are developing the ALIS system, our [Automatic] Logistics Information System, and are starting to see some incremental improvements there.

We are also fully committed to making the F–35 more affordable in both the cost of buying the airplanes and the cost of operating and sustaining the aircraft.

Finally, I want to thank the Congress and the Department of Defense for their support during the past 2 years of budget instability. The program has weathered this storm relatively intact. We have made no changes to the development program, and our aircraft quantities were preserved in fiscal year 2013 and fiscal year 2014, though the Department has reduced quantities in fiscal year 2015.

I would like to close by saying that my team is focused and committed to doing the very best we can for the warfighters, the taxpayers, and our partners to ensure the F–35 meets all of our needs. To that end, my team is rising to the challenge of managing this very large and complex program with integrity, transparency, accountability, and discipline.

I ask that you hold me and my team accountable in the coming years to ensure that we develop and deliver the warfighting capability that this country needs and expects.

I look forward to taking your questions.

[The prepared statement of General Bogdan can be found in the Appendix on page 33.]

Mr. RUNYAN. Thank you, General.

Mr. Sullivan.

STATEMENT OF MICHAEL J. SULLIVAN, DIRECTOR OF ACQUISITION AND SOURCING, U.S. GOVERNMENT ACCOUNTABILITY OFFICE

Mr. SULLIVAN. Thank you, Mr. Chairman, Ranking Member Sanchez, members of the subcommittee.

Thank you for the opportunity to discuss our work on the F–35 Lightning II, also known as the Joint Strike Fighter. With estimated costs near $400 billion today, the F–35 is the Department's most costly acquisition program. And with its three variants, it will provide fifth-generation fighter capabilities for the United States Air Force, Navy, and Marine Corps, as well as eight international partners.

As we have reported in the past, the program's acquisition strategy originally called for high levels of concurrency between testing and production, and, as a result, it has encountered significant costs and schedule growth, and has been restructured three times.

First in 2003 and then again in 2007 and then again in 2012, when the Department increased the program's cost estimates, extended its testing and delivery schedules, and deferred the procure-

ment of 410 aircraft into the future. Since that time, the program has remained stable; costs and schedule has also remained stable.

My testimony today is based on our March 2014 report, which was just released Monday, and I believe the committee has a copy of. And I would like to just make some quick points on the risk the program still faces concerning software development and future funding as well as some of the progress they have made with regard to manufacturing.

Software development challenges continued through 2013 due largely to delays in getting the software for Block 2B to flight test, then limited capability once it was delivered, and the need to fix and retest multiple software versions. So there is a lot of churn with the software development at this time.

In addition to risking the delivery of less than required initial operating capabilities for the Marines by 2015, these delays could increase the already significant concurrency between testing and procurement and result in additional cost growth. So there is—I am talking about this in terms of risk potential, not necessarily things that are happening today.

Finally, without a clear understanding of the initial capabilities that will be delivered, the services may not be able to make fully informed resource allocation decisions. To execute the program as planned, the Department plans to increase annual funding steeply over the next 5 years. It has a total of more than $50 billion in its current Future Years Defense Plan, and after that, it then plans to sustain an average of about $12.6 billion per year for this aircraft through 2037.

So annual funding of this magnitude clearly poses long-term affordability risks, especially given the nature of the current fiscal environment. The Under Secretary of Defense for Acquisition, Technology, and Logistics has directed the program to find ways to reduce unit costs on these aircraft before full-rate production begins. But meeting those targets will be challenging, as significant cost reductions are still needed there.

Sustainment cost estimates also strain affordability constraints. The Department's most recent estimates for operating and supporting the F–35 fleet are somewhere between $850 billion and $1 trillion, which Department officials have deemed unaffordable. The key driver separating those estimating assumptions is assumptions about future inflation rates.

On the upside, the aircraft manufacturing continued to improve in 2013. As the number of aircraft in production has increased, manufacturing efficiency has increased significantly, and the contractor has steadily reduced the overall labor hours needed to manufacture the aircraft.

In 2013, the contractor delivered 35 aircraft to the government, 5 more than it delivered in 2012 and 26 more than it delivered in 2011, and it is on track to deliver 39 more aircraft in 2014. It has now delivered just over 100 aircraft and has another 75 in process.

To summarize, the Department has made a number of difficult decisions through the years to put the F–35 on more sound footing, but more risks lie ahead, and it will be important as to how these risks are managed. If software delays continue, if funding falls short of expectations, or if unit cost targets cannot be met, the De-

partment may have to consider whether to proceed with production as planned or alter production rates in the future.

At this point, we believe the most pressing issue is the effect software delays are likely to have on the initial capabilities that each military service will receive. To make informed decisions about weapons system investments and force structure, the services must have a clear understanding of the capabilities that the initial operational F–35 will possess. Thus in our annual report, we recommended that the Department assess the capabilities that can realistically be delivered to each of the services by their established ILC [initial launch capability] dates and share the results of the assessment with the Congress and the services as soon as possible.

Mr. Chairman, that completes my prepared statement. I would be pleased to take questions.

[The prepared statement of Mr. Sullivan can be found in the Appendix on page 64.]

Mr. TURNER [presiding]. Mr. Sullivan, since you are from Wright-Patterson Air Force Base in Dayton, Ohio, it would be perfectly appropriate to say "Go Flyers" at the end of your testimony.

Mr. SULLIVAN. Well, Mr. Chairman, I am also a brand new grandfather, if I could. Charlie Sullivan was born Monday.

Mr. TURNER. Excellent. Congratulations.

Mr. SULLIVAN. Mother and son are doing well.

Mr. TURNER. Excellent.

Mr. SULLIVAN. Go Flyers.

Mr. TURNER. There you go.

You know, obviously, Mr. Sullivan, as I stated in my opening statement, we are very concerned about the software delays. And recognizing that the issue is one of both, you know, operational capability and inventiveness, it is not as if we are—this is off-the-shelf software completion, this is where actual advances need to occur.

What is your concerns about what these additional impacts could be on the program with these delays? This obviously is one that can cascade, the software being one of the leading aspects of development.

Mr. SULLIVAN. Yes. That is a good question, Mr. Chairman. I think there are two parts to that. The first one is just the risk that you don't get the software completed, that you don't get full capability, and I think there still is risk in that area. Very, very, very complex software development has to go to get the sensor fusion and all of the communications across many different platforms that they are going to need on this aircraft. By the time they complete block 3F, which is the final software.

So there is still an enormous amount of complexity. This program had started its software and has developed it in blocks, from block 0 all the way up to Block 3F. And as they have delivered the blocks, there has been spillover from one block to the next block, and so that creates inefficiencies, more churn, and kind of a more chaotic environment. So there is all of that the program is working with now is trying to get the earlier blocks finished up while they are still trying deliver very complex software. A lot of costs and schedule strain on that.

And, the other thing that it means to the program, I think, I mentioned in my statement that concurrency was a huge issue on this aircraft program. And the longer it takes to complete that software development, of course, the longer you remain concurrent between testing and production, and that means that more changes could take place before you finally get the aircraft that you want. You might also have to keep software engineers around longer, you might have to stay in development longer. All of that stuff creates cost and inefficiency.

Mr. TURNER. General, looking at the GAO's report about the software delays, obviously the concern is the end goal of delivering warfighting capabilities, the concerns about the warfighting capabilities to the Marine Corps by July 2015. Could you please describe these impacts, especially since we are in a period of time where the Air Force is looking at divesting of other weapons systems, aircraft. Is the gap going to get bigger?

General BOGDAN. Sir, right now, the three increments of software that I am watching very carefully and, oh, by the way, when Mr. Sullivan talks about concurrency, we are also a little bit concurrent when it comes to software development. Because we are currently finishing up our 2B capability, interim capability. At the same time, we are in the middle of our 3I capability, which is the exportable version of the F–35, and then finally that 3F capability.

So when I make my comments, I will have to talk about each of those individually. Because, quite frankly, the risk is different for all three.

For the 2B capability that the U.S. Marine Corps is going to use to declare IOC [initial operational capability] and limited warfighting capability, we are tracking 206 individual capabilities within the software, and those are what the U.S. Marine Corps needs to declare IOC.

As of today, 80 percent of those have been verified as good to go. We have 20 percent left. And I have two more increments of software to go this summer before I finish flight testing for 2B at the end of the year.

My assessment, and my look at the technical risk and the flight test program, is that I am within 30 days of completing 2B on time. So fundamentally very, very little risk in delivering software-wise the capability to the U.S. Marine Corps.

What I will tell you is more troubling for Marine Corps IOC, and I will just mention it here, and we can get it later. Modifying all of the older airplanes to the production-representative configuration that the Marine Corps needs to go to war with, is even more of a problem than the software in 2015. So that is 2B. I am pretty confident on the software capability, a little less confident on the mods [modifications].

The 3I capability, for U.S. Air Force, also quite confident. They have an extra year for us to get it right before they declare IOC, and it has the same capability as 2B. So, fundamentally, there is some time margin built into that.

And, finally, the last capability, the 3F capability, that is the one I am most concerned about in terms of schedule delay. I will tell you today, if we don't do anything else and we just continue to perform the way we are performing right now and not getting any bet-

ter, we are going to be somewhere between 4 and 6 months late on that software. It is as simple as that. And that has impact not only on the U.S. Navy's ability to declare IOC, but some of our partners and their ability to field what they consider to be a minimum capable airplane.

That is unmitigated. I haven't done any—there are a lot of things I can do between now and 2018 to bring that back to a more reasonable timeframe. But if I had to tell you today, I would say 4 to 6 months late. And it has mainly to do with the complexity of the software work we have to do in 2016 and 2017. It is really, really hard stuff. And I am just projecting that we are going to have some trouble getting it done.

Mr. TURNER. General, my last question, the news articles that Italy may be delaying its acquisition of 90 F–35s, what is the status of the foreign acquisition programs with our partners? It obviously both significantly affects our cost structure but also the development path.

General BOGDAN. Absolutely, sir. The biggest impact our partners have today when it comes to the quantity of airplanes they are buying and when they buy them is the unit cost of the airplane. In fact, the partners have a greater impact on either reducing the cost of the airplane or actually—I won't say increasing the cost of the airplane, because it will always cost cheaper, later. We have made that commitment to the enterprise. But that cost reduction gets smaller. Even greater than any movement our services have made at this time. So they are very, very important to the cost curve as we call it.

Relative to Italy, some of the press reports, at least in the conversations I have had with the senior leadership with the Italian Air Force and their Ministry of Defense, and I have had conversations with them recently, their Prime Minister has said that future investment in the F–35 is on hold. Okay, so they have committed to buying a certain number of airplanes in their FACO [Final Assembly and Check Out], or their fabrication facility in Cameri, Italy.

And they will buy those airplanes. But their future buy beyond that, beyond the first 20-some-odd airplanes is on hold until such time as their Parliament decides what to do. So that is an instability for us that could affect future prices.

Turkey, the same. They have delayed their buy 2 years. They were anticipating this year that they would come on board and fully commit to buying. They have not yet. So we are waiting there.

And Canada would be the third country where we are waiting to see how their political process plays out.

If those three partners choose to push airplanes out or choose to reduce their buy on airplanes, it will have an effect on the price of all the other partners and the services buying the airplanes to the tune of about 2–3 percent increase in price.

Mr. TURNER. General, to the extent that our subcommittee may help in trying to communicate some of the issues of the advantages of the F–35 and foreign acquisition decisionmaking, please let us know. We know there is a lot of legislative discussion among their Parliaments and legislators that perhaps we can help effect. Please

do and include us if there are issues where we can make a difference.

Ms. Sanchez.

Ms. SANCHEZ. Thank you, Mr. Chairman.

I will just note for those who are on committee who haven't been following this, as we go out on the timeline, the per-unit cost of the F–35, supposedly, theoretically, will come down. And so when our foreign partners are looking, they want to catch the end part of that in order to have their per-unit costs come down, rather than catch the front end. So a lot of them are figuring—so it is not because they don't want them, it is because they want to find the sweetest spot they possibly can when it comes to per-unit costs. Am I not correct, General?

General BOGDAN. You said that very well, ma'am.

Ms. SANCHEZ. Yes.

General BOGDAN. However, the other part of that is, as you know, the other side of that coin is, those people that need the airplane sooner——

Ms. SANCHEZ. Right.

General BOGDAN [continuing]. Will now pay that price.

Ms. SANCHEZ. Right. Or those of us—with the U.S., if our foreign partners move out on that timeline, then the cost per unit for us, sitting on that timeline of keeping the production going and bringing down the cost, is higher to us. So it is a real interesting game we play.

General BOGDAN. But there is one thing, and I don't want to interrupt, our FMS [foreign military sales] customers, who are different from our partners, they are actually offsetting a lot of the movement that our partners have made in pushing airplanes out and the U.S. services. So our FMS customers are filling the gap, so to speak, over the next few years, and that is helpful.

Ms. SANCHEZ. Okay. General, you have been quoted many, many times as saying that there is no more money and no more time, when it come to the F–35 program. Correct?

General BOGDAN. Yes, ma'am.

Ms. SANCHEZ. Well, just this week, the committee was briefed by your office and was told that in 2015, our partner nations on this program have agreed to provide $400 million in additional funding. While that is good news, in theory, that our partners are willing to provide the extra money, does that mean that we have $400 million cost increase in development that these funds are covering up?

What is happening——

General BOGDAN. Yes, ma'am.

Ms. SANCHEZ [continuing]. With these $400 million that you told me——

General BOGDAN. Well——

Ms. SANCHEZ [continuing]. That it is enough, remember you spent it, it is done. You are going to work within that time, that time and that money allotment. I have heard this over and over, and now I am getting, oh, by the way, somebody is throwing in another $400 million into the pot.

General BOGDAN. Yes, ma'am. A couple of things. The money that the partners have generously offered for development work came from prior savings that they had on the program in terms of

what they had budgeted for and what they are paying for airplanes and paying for things right now.

So this was not our partners going back and asking the governments for more money. They didn't do that. What we did with this—what we are going to do with that money is we are going to use it in development to offset what the services would have to pay over the next 5 years. The price of—the end price of development has not changed. All we have done is moved that $400 million into the SDD [Strategic Deployment Document] line so that we could help offset the Navy, the Marine Corps, and the Air Force's bill for the next 5 years for development.

Ms. SANCHEZ. So what—I am trying to understand what you just said to me. But it seems to me that what you said was our partners have—they had allocated more, they are going to spend less for what they thought they were going to get. They have some additional monies they are going to put into the development phase, and that phase would have been picked up by the Navy, the Army, and the Marines. And now our Army, and Navy, and Marines don't have to put that money there. So are they going to come and give the committee the $400 million to put somewhere else?

General BOGDAN. So, so I will make two points about that. I will make two points about that.

The first point is, the reason why the partners chose to do this is because, as you recall, Mr. Sullivan said the program had been re-baselined three times.

Ms. SANCHEZ. Uh-huh.

General BOGDAN. In re-baselining the program three times, the Department of Defense put in 13.5 billion more dollars than it expected to for development, and none of that money came from the partners. Because they had made the initial investment in SDD and never contributed anything further.

So as a show of good faith for that $13 and a half billion that the Department of Defense picked up, that is why they agreed that this added money could be used.

When we put our POM [program objective memorandum] in our President's budget each year, I let the services know how much money I need each year for the development program. In 2015, where I am going to book that $400 million, I reduced the bill to the services by that amount. So when they put in their fiscal year 2015 President's budget, it included $400 million from our partners, which reduced their bill, and, therefore, they could use that money for other things.

Ms. SANCHEZ. So noted. We are going to take it back and take a look and make sure that that is what happened.

Mr. Chairman.

Mr. TURNER. Mr. Enyart.

Mr. ENYART. Thank you, Mr. Chairman.

General Bogdan, I am glad to see that you grew up in KC–135s and that was the first operational aircraft you flew. And I am glad also to see that you worked on the KC–46 program.

And I guess what concerns me is with all of the talk about the mushrooming costs in the F–35, as you well know, the design of the 135s is over 60 years old. Most of the airframes the crews are flying are now older than the crews. And, of course, the KC–46 mod-

ernization program is vital to the entire fleet. And do you foresee any problems with the funding of the KC–46 Alpha, in light of the increasing costs that we have seen in the F–35?

General BOGDAN. I don't want to get too far out of my lane. I haven't been on the KC–46 program for a number of years. But as I do recall the development program for the KC–46 is a fixed-price development. So the U.S. government's liability is capped on how much it is going to pay for that development. And that was a choice Boeing made during the competition, that the tough competition they had for that program.

So relative to the KC–46 and the Air Force budgets, I will defer to General Field and Dr. LaPlante.

What I can say is, when I was the program director there, it was imperative that the Air Force funded each and every year of the development program because you do not want to underfund a fixed-development contract because the contractor will then have recourse to come back and say, You didn't give me all the money I needed, and, therefore, you slowed me down, therefore, we will change the terms and conditions later on.

So it is important to keep the funding for the KC–46 on the development program constant because of that contract type, sir.

Mr. ENYART. Thank you, General.

I yield back, Mr. Chairman.

Mr. TURNER. Gentlemen, thank you very much for your testimony, and we appreciate the information you provided to the committee. We are going to turn to our next panel now.

Ms. SANCHEZ. Question.

General BOGDAN. Thank you, Mr. Chairman.

Ms. SANCHEZ. Before I let you go——

Mr. TURNER. Before I excuse you, my ranking member has a last question.

Ms. SANCHEZ. I'm sorry, I had one other question that I felt was very important for our committee to hear.

So the F–35 program figure shows that all three versions remain far below the planned level of reliability. Specifically, as of this month, the F–35A was 4 hours between critical failures as opposed to 13 hours expected. The F–35B was 3 and a half hours, when it should have been 7 and a half hours. And the F–35C was only 2.7 hours, however, we anticipated would be at 9 hours.

If we weren't in such a large-scale production, it might be one thing. But we are there now. So that means that within a couple years the service will have hundreds of F–35s on their hands that won't be able to fly very often unless things get dramatically better. At this point, it looks like the program wouldn't even meet a 50-percent reliability goal when the aircraft are fully operational.

So, I know that these will improve over time, but what are the specific steps that you are taking to lift that critical reliability time up?

General BOGDAN. I bet that is my question.

You are right, ma'am. All three variants today are below what we call the reliability growth curve on the airplane. And "over time" is not the right answer. Things will get better over time, but that is not the right answer.

The right answer is, and we have started it now, was a fully funded, disciplined, reliability and maintainability [R&M] program that looks at all of the cost drivers, all of the pieces and parts that are coming off the airplane too often, the repair times for those parts, the supply chain and spares posturing. All of those things play into reliability and maintainability.

And I can tell you, quite frankly, when we first started flying the airplane, one, we didn't have enough data to know where we were bad, so to speak, we have got more of that data; and, two, we didn't have a great focus on it because, quite frankly, the last few years the program was just trying to hang on.

We are past that point now. We are at the point now where I have 58 operational airplanes out there. We have flown 12,000 hours. We know what the cost drivers are, we know what parts are coming off too frequently, we know what maintenance procedures take too long. We have just got to go do something about it. So I started last year a fully funded, fully dedicated R&M program. I put a program manager in place. Lockheed Martin and Pratt & Whitney have done the same corporately on their side, putting folks in place. And we are systematically attacking that problem.

The problem here is, you are not going to see results in the next 2 or 3 months. It is going for take months and months and months of constant effort to start seeing this improve. Our goal is by 2015 to have the aircraft availability at 60 percent.

Ms. SANCHEZ. Mr. Chairman, I think that is a very critical piece to this program, and that you and I need to sort of keep an eye, and ensure that this reliability figure continues to go up rather than stagnant as it is.

Mr. TURNER. Excellent. Absolutely.

Mr. SULLIVAN. If I could, we have looked at the reliability too, and it is a really big concern now. It is very risky. In terms of not only getting the unit costs down on the aircraft but also in terms of the operating and support costs that are—you know, the estimate right now is deemed unaffordable. That has all got as much to do with reliability of the aircraft as anything else. So this is a critical point.

Ms. SANCHEZ. Yeah, if you are paying for it but you are not flying it, that is bad news.

Mr. SULLIVAN. That's right.

I mean, we have many examples from the past. The F–22 program is an example where they are still working on reliability on that aircraft, and, in fact, have started additional acquisition programs to get that fixed today.

Mr. TURNER. Well, gentlemen, as I was excusing you, before you almost made an escape, but we have two members who were able to return to the hearing, both of which who have questions. We will turn to——

Ms. SANCHEZ. Sorry, Mr. Chairman. But this is incredibly important.

Mr. TURNER. I am glad that our ranking member held you for a time——

Ms. SANCHEZ. I might add that that $61 million program they are talking about, it is above the amount of money that we have going on. So——

Mr. TURNER. Giving the floor for Ms. Walorski.

Mrs. WALORSKI. Thank you, Mr. Chairman.

And sorry if you have already addressed this. But I just want to kind of follow up with Mr. Sullivan with what you were just talking about on this issue of the significant financial obligation on this—for the Air Force and the Navy being deemed unaffordable. And I apologize if you talked about this earlier. But are there specific steps or can you talk about how in the world this program can—we can drive the operating and sustainment costs down?

Mr. SULLIVAN. That is a very good question, and it is—the last question was kind of dealing with that too.

Mrs. WALORSKI. Yes.

Mr. SULLIVAN. Since—and the program and the general here is dealing with O&S [operating and support] costs now, I know. They have many initiatives going on, trying to drive that down.

So in order to get O&S costs down, you can do a lot of things. You can change the availability of the aircraft, you can have them fly less. You know, less flight hours mean less maintenance, and things like that. You can look at manning and try to reduce the number of people that it takes to keep an aircraft up and running.

You can look at fuel costs, which is very good. That is a kind of uncontrollable. There is an awful lot about O&S that is uncontrollable. Fuel costs is one of those things. That is a big part of it.

Inflation rates are, you know, who can predict inflation? That is a big part of it. So there are a lot of costs you can't control.

But reliability is one of the best ways, if you can have a reliable weapons system, and that means designing in reliability. And the general talked about a reliability growth curve. That is really the critical thing that you want to keep an eye on. In order to get more reliability they drive down the reliability growth curve established from flight test and ground testing and things like that.

That is the single, key, real root way to get O&S costs down more, is to improve reliability of the aircraft. And this program, with a lot of initiatives under way, but still, as the Congresswoman said, they are still only halfway there, and they are not that far away from full-rate production.

Mrs. WALORSKI. Thank you.

Thank you, Mr. Chairman.

Mr. TURNER. Mr. Barber.

Mr. BARBER. Thank you, Mr. Chairman.

And before I begin my question, I just want to congratulate you on being a new grandparent.

Mr. SULLIVAN. Thank you very much.

Mr. BARBER. It is awesome. I have five. They are wonderful, beautiful. Have you ever heard a grandparent say his kids are not wonderful or beautiful? But I hope you enjoy, because it is a great experience. I really appreciate it myself.

Mr. SULLIVAN. Charlie is a gift.

Mr. BARBER. I want to thank you both for coming today.

And I want to start off by saying that I am a very strong supporter of the F–35, and as you probably know, I would love to see this program, or this fighter flying in southern Arizona. Hopefully, one day we will be bedded down in Tucson.

A recent survey that was conducted in my community, in fact it was just published about a week ago, showed overwhelming community support for Davis-Monthan Air Force Base, which is in my district, and the bedding down of the F–35. So I think that survey, which was done in an objective and scientific way, should put to rest any notion that our community is not interested in the F–35 or the future of the air base.

So we have invested a lot in this program, obviously. And getting your arms around trying to make it more affordable and prevent future cost overruns. And since we have invested so much money, we have got to finish the job. I don't think it is any time to reconsider. But I am concerned, as my colleagues are, about the delays in the F–35 program, because it means, in my view, that during a time of fiscal uncertainty we will be spending more tax dollars while potentially negatively impacting on our air strategy.

First, the development and procurement costs for this platform are already significant, as we've stated. And now delays in developmental flight testing will cost us more money as we fix recurring problems with emission systems. These delays could, I believe, prolong the delivery of the first batch of F–35s by an additional 13 months before it attains initial operational capability.

The President's budget has called for divestment of an important air platform, many of them, including the A–10, so that the Air Force can modernize by acquiring the multi-role F–35. And I would like to ask you, General, if we won't see the F–35 fielded until well after the Air Force begins to rid itself of important capabilities, such as the A–10, don't we leave our military men and women without the important tools they need?

And would you agree that it would be prudent to maintain the A–10 warfighting capability until we can be assured or reassured that the F–35s will be ready?

I am very concerned about this gap I think the divestment plan would create for our men and women on the ground.

General BOGDAN. Sir, I am going to defer most of that question to my Air Force brethren for the next panel. But what I will tell you is that we are intending on delivering an air-to-ground and close-air-support capability with the F–35 in all three increments, 2B, 3I, and 3F, with 3F being the final capability. And I think the airplane from a technical standpoint and from a national standpoint will have the ability to conduct that mission safely and effectively for the Air Force. What they do with the A–10s, again, I will defer that to the next panel.

Mr. BARBER. Nice punt there, General. I understand. We will talk about it next panel.

I just want to ask a follow-up question, though. Due to the uncertainty surrounding the delivery of the F–35 software capabilities, the GAO, as you know, Mr. Sullivan, recommended that DOD execute an assessment of the specific software capabilities that could realistically be delivered, and those that would not likely be delivered. How will the DOD conduct this assessment? And what software capabilities are most critical?

And, additionally, if DOD follows the GAO recommendations and decides to lessen software capabilities, would this have any impact,

in your view, on the proposed mission systems that would enable the F–35 to conduct adequate close air support, Mr. Sullivan?

Mr. SULLIVAN. Okay. So our recommendation is that they assess where they are with software today in relation to the 2B software block that they are to deliver to the Marines for the Marines' IOC date, which is now scheduled for July 2015.

So, what we are saying is, the Marines deserve to know exactly what they are going to get. So before that date, they should—there should be an assessment on, realistically, here is what we have for you.

And I would go back—you mentioned a 13-month delay, and I know in our report we have a 13—we have something in there about 13 months' delay in software. But want to clarify that that is a delay that would only extend the IOC date 6 months. That 13-month delay would be from May of 2015 to November of 2015. They right now are saying May. They have a 7-month kind of management reserve in there. The Cost Assessment and Programming Effectiveness, the CAPE from OSD [Office of the Secretary of Defense] has looked at that schedule and said that that they may be as late as 13 months beyond May. Which would put them to November of 2015. That is—so, all told, that is a 6-month delay that the CAPE is talking about. That is what we refer to in our report.

So what our recommendation is, is really just to assess software and let people know what is going to be available to them on these key dates. July 2015 is one. If the Marines aren't going to get the full 2B block capability, then they should know what they are getting. They should have, you know, the ability to delay if it is going to be a little bit longer to get full 2B. That is essentially what we are saying.

Mr. BARBER. I guess I just close——

Mr. SULLIVAN. We are not by any means saying that they should—that the JSF [Joint Strike Fighter] should be delivered without full capability eventually.

Mr. BARBER. I just would wonder, though, since we have had so many delays, so many promises made that have not been kept, General, how can we be assured that these timelines are real?

General BOGDAN. I will give you a two-part answer, sir. The first answer is rooted in the technical underpinning of the re-baseline that we did starting in 2010. We added time and margin into that schedule from 2010 to 2018, and we made it much more realistic. We planned for discovery that we hadn't foreseen, we planned for delays in flight testing. We planned for a lot of things that were more optimistically planned for before that. I guess that is the best way to say it.

So from that perspective, the dates that I am giving you are on that baseline plan from 2010, and we are currently executing to that plan without changing. The other—so that is the technical answer, sir.

The other answer is, I am not here to advocate for the F–35, necessarily. I am here to execute the program. And I want to give you the best information I can, good, bad, or otherwise.

And so the other part of my answer is, you will—you somehow, somehow have to trust me, and if I am wrong then you guys can

take it out on me. Because I consider myself accountable for the outcomes on this program.

Mr. TURNER. Well, Mr. Barber, we are going to ask that——

Mr. BARBER. Thank you, Mr. Chairman.

Mr. TURNER. I ask that the remainder of your questions be submitted for the record. We do need to get to the second panel.

Thank you, gentlemen. We appreciate your testimony.

General BOGDAN. Thank you.

Mr. TURNER. Next, we will go to Vice Admiral Paul Grosklags; Lieutenant General Robert Schmidle; Michael Manazir, and—Rear Admiral; and Dr. William LaPlante, Military Deputy Assistant Secretary of the Air Force for Acquisition; and General Field, United States Air Force.

I understand the two opening statements will be given by Admiral Grosklags and Dr. LaPlante.

Turning to Admiral.

STATEMENT OF VADM PAUL A. GROSKLAGS, USN, PRINCIPAL MILITARY DEPUTY, ASSISTANT SECRETARY OF THE NAVY, RESEARCH, DEVELOPMENT AND ACQUISITION; ACCOMPANIED BY LTGEN ROBERT E. SCHMIDLE, JR., USMC, DEPUTY COMMANDANT FOR AVIATION, U.S. MARINE CORPS, AND RADM MICHAEL C. MANAZIR, USN, DIRECTOR, AIR WARFARE, OPNAV N98

Admiral GROSKLAGS. Thank you, sir.

Chairman Turner, Representative Sanchez, distinguished members of the subcommittee, thanks for the opportunity to be here today to talk about our Naval and Marine Corps aviation programs.

As I think you are aware, we had to make many difficult decisions as we built our 2015 budget submission. But we believe what we have submitted for your consideration is a plan that ensures we have the capacity and the capability to ensure that we can fight and win when called upon.

But I also have to tell you that this is a plan that contains increased levels of risk as opposed to our PB 2014 [President's budget for fiscal year 2014] submission. Now, on our 2015 submission, we are continuing development of fifth-generation aircraft. We are fully committed to both the F–35B and the F–35C, and believe the program is on a solid path to meeting our initial operational requirements for the Marine Corps in 2015 and the Navy in late 2018 or early 2019.

Our unmanned aircraft systems also maintain a full measure of our attention. These include already fielded systems at the unit level, like the Marine Corps' RQ–21 Blackjack, all the way up to carrier strike group and carrier air wing platforms, like the Unmanned Carrier Launched Airborne Strike and Surveillance aircraft, otherwise known as UCLASS. It is a mouthful.

We also continue investment in our critical development programs, such as the 53K Heavy Lift Helicopter, the MQ–4C Triton unmanned maritime surveillance aircraft, and the Presidential helicopter program.

And we are recapitalizing in other areas. Maritime patrol, with the P–8 replacing the P–3, our carrier-based early warning aircraft

with the E–2D, and virtually all of our vertical-lift and tiltrotor aircraft with the V–22, our H–60s, and the H–1.

And, finally, but not in the least, we have focused investments being made in our currently fielded aircraft and systems to ensure that they remain relevant, they remain safe, and that they are able to counter the threat well into the next decade.

Now, as I mentioned earlier, the efforts that we are undertaking I have just described are not without risk. Even with the spending levels supported by the Bipartisan Budget Agreement, we have been forced to extend some development timelines, we have reduced our procurement rates, and we have reduced the rates at which we have planned to modernize both capability and capacity.

And, frankly, a transition back to the Budget Control Act levels of spending will have a significant negative impact on our readiness, our modernization, and eventually the relevancy of Naval Aviation. Ultimately, this result is increased risk to our operating forces forward deployed.

So, Mr. Chairman, we appreciate the opportunity and look forward to your questions.

[The joint prepared statement of Admiral Grosklags, General Schmidle, and Admiral Manazir can be found in the Appendix on page 76.]

Mr. TURNER. Dr. LaPlante.

STATEMENT OF WILLIAM A. LAPLANTE, ASSISTANT SECRETARY OF THE AIR FORCE FOR ACQUISITION; ACCOMPANIED BY LT GEN BURTON M. FIELD, USAF, DEPUTY CHIEF OF STAFF FOR OPERATIONS, PLANS AND REQUIREMENTS, U.S. AIR FORCE

Dr. LAPLANTE. Thank you, Chairman Turner.

Thank you, Ranking Member Sanchez, other members of the—distinguished members of the subcommittee. Thanks for having the hearing. And already we have already had good discussions and good questions; so, thank you for having the hearing and for what you do.

I am joined here by Lieutenant General Burt Field, who is the Deputy Chief of Staff of the Air Force for Operations, Requirements and Plans. So we are here to talk about the fiscal year 2015 budget that we have submitted and the tough choices that we have already talked about here.

Just like my Navy counterpart, the Air Force, all the services had to make these tough choices. The choices were between the things we know, readiness today, if we have to go to war today, versus building the force that we know we need for the next 10, 15 years.

We also know as we watch around the world, regardless of whatever threat assessment you think, that the technologies are proliferating. Particularly, places where we are used to just being able to operate at will—space, cyber, air—we can't assume that in the future.

The technologies to contest that are proliferating, and we have to plan for that. We also have to plan for being able to react quickly and globally.

So in this tough environment there was tough choices being made, and we have talked about some of those hard choices already.

I would say, if the last time that some of us appeared before you was back in October, it was a hearing about the effects of the sequester. And I just want to contrast and thank you from where we are then from where we are now and, also, talk about still issues we have problems with.

First of all, back then, what we were telling you was, to meet the sequester numbers, we were having to make this very difficult choice between readiness today—flying hours, weapons systems sustainment, going into depots—and investment in RDT&E [research, development, test and evaluation] really were the only two places we could take the money, and it was a very difficult situation. We asked you also to help us with just understanding stability so we could do planning.

But with the BBA [Bipartisan Budget Act], you have given us—and I want to thank you for that—some stability. We now know what the budget is. We know what to plan for in 2014. We know what to plan for 2015, in particular. And we have a down payment to begin to turn back and upturn and working on readiness. Readiness is not going to be fixed with turning a switch, as you know, but thank you for the BBA because it is going to allow us to start working on that again.

The other thing the BBA did a bit—and I want to just temper what it was able to do for us—we did use a little bit of it in the Air Force to protect some of our high-priority programs.

Specifically, we were able to protect the F–35 buy. I think back in October we said that, had the sequester occurred, we had four to five airplanes at risk in F–35. That was able to be mitigated with the BBA in 2014. And the same would have had to happen in 2015. So that helped us there. And we were able to do some to help us stay above minimal sustainable rates in munitions.

But, largely, what the BBA does for us is it gives us stability and it helps us turn the corner back again, begin to, in readiness.

But here is what the BBA does not do. If we return to the sequester numbers in 2016 and beyond, we still have the reality of a smaller Air Force. We are going to have a smaller Air Force regardless.

But, as has been said, platforms like the KC–10, the Global Hawk Block 40, technologies—exciting technologies like the new engine technology that we are looking at for adaptable engines—all of those frankly do not survive mathematically if you look at it in a sequester budget beyond 2016.

And so that longer-term situation remains unchanged, and we are having to plan for that, but the near-term situation is significantly different than when at least I appeared before you back in October.

So that is a summary of what I wanted to say, and I look forward to answering your questions. And I also, again, enjoyed the discussion on F–35 and would be happy to talk more about that. Thanks.

[The joint prepared statement of Dr. LaPlante and General Field can be found in the Appendix on page 106.]

Mr. TURNER. Dr. LaPlante, your statement is an excellent transition to my questions for General Field and Admiral Manazir and General Schmidle.

I opposed sequestration because I thought it would be irresponsible and devastating to our military. Sometimes pessimists are right. I am not optimistic about what we are facing for 2016 and on.

I believe that part of the reason why sequestration was put into effect is because the picture of what would occur if sequestration was implemented was not told, in part, because DOD was constrained from planning for sequestration until it was upon us and then, when they were implementing it, they didn't have the time to be able to look up from their desks and explain what was to happen.

So my question to each of you is: If you are forced to accept sequestration-level budgets between 2016 and 2023, how will that affect capability, capacity of each of your branches, Air Force, Marines, and Navy? And how does that affect your ability to meet the requirements of the National Defense Strategy?

General Schmidle, we will begin with you.

General SCHMIDLE. Okay. Thank you, Chairman, and Ranking Member Sanchez.

So, to begin with, the sequestration, as you know, Chairman—there is two things that affect us, two big bins. One of them is readiness and the other one is in our investment portfolios. And we—the example that we used—oh. Sorry. Better now? Okay.

The example that we talked about last year was the number of F–18s that we had that were in reporting status as opposed to the number that were out of reporting status.

Just a couple of snapshots of where we are today. About 50 percent of the airplanes that—the Marine Corps F–18s that we own are not on our flight lines.

They are going through depot maintenance, and they are in various places where they are getting modified so that we can continue to fly them until we get enough F–35s to be able to move into the fleet to make up for those to replace those airplanes.

So that is an effect that we have noticed right away from sequestration because of the workforce that was being paid, if you will, to work in the depots to do that.

The other place that we would notice it is in all the aircraft procurement programs. As you know, sequestration comes in and it just takes a bite out of a—a percentage, if you will, out of each of the program element lines.

And we don't have a lot of choice in that. We have to pay the bills somehow. So you are going to have—our ability to buy more to modernize our airplanes is going to be affected as well.

And the third piece of this—or the second big piece, if you will, is readiness. Sequestration would have an effect on readiness, which would equate to about 10 percent, if you will, of the flying hours that we fly every year.

And if you just do the problem mathematically, right now, today, as of right now, we have a little over 70 percent, 73 percent of all the airplanes in Marine aviation, all of them, are at—the readiness

level for all of our squadrons, rather, is at what we would refer to as C2, which is ready to go to war. That was in 2013.

In 2014, as where we are today, we are at 65 percent, and that is—and it would be lower except for the money that we got back in the BBA.

If we continue on that rate, by the time we get to 2017, if we are fully sequestered, we will be down to—around 50 percent of our forces will actually be at the level of readiness that we would want them to be at in order to push them out the door, and by 2021 we estimate that we could be as low as 27 to 30 percent.

So that is over time what happens to us when we take the flight hours out, we don't have the hours to fly, we don't have the airplanes to use to train the pilots, and the readiness continues to go down.

So that is probably the best example that I can give you between the investment accounts and the readiness of how that is going to affect us.

Mr. TURNER. Admiral.

Admiral MANAZIR. Mr. Chairman, thank you for the question.

I share the concerns that General Schmidle laid out because, as you know, Naval Aviation is Navy and Marine Corps aircraft. I will start far term, then midterm, then near term.

Far term is procurement of aircraft. As we continue to buy our P–8 out to the end of the FYDP [Future Years Defense Program], as we continue to buy the unmanned systems with N–26 sponsorship and N–98 sponsorship to the end of the FYDP year, as we continue to look to buy JSF and we continue to look at the numbers of the EA–18G Growlers that are coming this way in the execution year and then potentially in fiscal year 2016, you will see those numbers go down because that is where the flexibility comes from.

In the midterm, our modernization is to keep our forces relevant. So in Naval Aviation, as we increment the P–8 to greater capability, as we increment the air plan or flight plan for the F–18E and F Super Hornet and make those more relevant, those capabilities will be pushed out 1 year and 2 years to the right. The initial operational capabilities of those advanced Super Hornets, advanced aircraft, advanced P–8s, will be pushed to the right.

And then near term is readiness. As the general laid out, we normally like to push our forces out with C2 readiness to be able to accomplish any mission across the spectrum of warfighting. We would have to lower that down to a lower level, but what we would do is we would push those deployed forces out with a C2. It is the search forces behind them that would take the greatest impact.

I will give you an example, sir. Last year, a year ago, I was the strike group commander for the *Eisenhower* Strike Group. Because of sequestration, we were told to come home, do flight deck maintenance, and in 2 months took the entire strike group back out again to the Gulf.

So we turned around in two deployments, 10½ months deployed in 12 months, and we took the surface forces with us to do that. That was a direct impact of the sequestration levels of readiness that we had to take our previously trained strike group and turn around twice. So that surge force was not available to back up what we have out on the line.

You will see very, very capable forces on the line, Navy and Marine Corps. What you will find is the surge forces behind them are going to start to hollow out. As the sequestration levels go down to what they were during the BCA, you will see no surge forces behind them. With the current BBA, you will see a surge force of one to two behind what you have currently got deployed.

Thank you, sir.

Mr. TURNER. General.

General FIELD. Thank you, Mr. Chairman.

This will sound remarkably similar to my colleagues. You will have a smaller, less capable, less ready, less viable Air Force that will not be able to execute the Defense Strategic Guidance. That is the bottom line.

And similar to what the Marines and the Navy just said, what happens is we are in an—at risk will be some of our highest priority programs, the F–35, the long-range strike bomber, and the KC–46, although those are the three that we are going to try to protect the most.

What will also be on the table will be the KC–10, the RQ–4 Global Hawk, other ISR [intelligence, surveillance, and reconnaissance] assets. Virtually every modernization program that has not already been cut will be on the floor, and that is what will lead to that smaller and less capable and less viable force.

Like the Marines and the Navy, our readiness suffered. As we told you last year, our readiness levels were remarkably low prior to sequester, and we were looking at a 3- to 6-month effort just to recover to that already too low level.

In some of our squadrons of the 31 we stood down, we have recovered that readiness. In other squadrons, we are still working to recover back to those levels that were already too low.

We will have to probably attack that readiness problem again, and we will probably have more squadrons stood down for periods of time that will inhibit any recovery of the readiness for the future.

Mr. TURNER. Ms. Sanchez.

Ms. SANCHEZ. Thank you, Mr. Chairman.

I just want to put down for the record—because I heard General—our Marine General here say a comment. He said we have to pay the bills somehow.

So we got into sequestration because we had to pay our bills somehow, and that was the fight that was going on at the time. So it seems like nobody would want to vote in a sequester.

But the problem was there were some that were holding up our ability to pay the bills that we, as a Congress, had already agreed to pay. So that is how we ended up where we are.

To the Admiral, the Navy has stated that the production of the F–18 will end in 2016 or 2017 unless additional foreign military serials occur and that, as a result, the U.S. will be left with only one production line for manned tactical fighter aircraft. Some have proposed providing the Navy with additional EA–18G Growler electronic warfare aircraft in order to keep the production line going.

So my questions are: Does the Navy have a validated requirement for more of these aircraft? If we, the Congress, would provide the additional aircraft, what would the Navy do with them if Con-

gress doesn't provide additional people and operations, funding facilities, et cetera? Would you still use the extra aircraft? And if the production line is shut down, does that necessarily mean we wouldn't be able to start one up, for example, for a sixth-generation aircraft intended to replace something like the F–18, that the F–35 would not be in that space?

Admiral MANAZIR. Thank you, Member Sanchez. Thank you for the multifaceted question. I will address the last part first.

I will tell you, in the Naval Aviation, we don't know what "sixth generation" means because we don't know what capability that brings us later on.

To be fair, we are required to look—when any type model series goes out of service, at the end of its service life, like in the F–18E and F series, which is going to go out in 2035, we will look at the range of gaps in capability that that Super Hornet delivers right now to the Nation and we will determine what the solution could be. It could be more F–35s. It could be an unmanned system. It could be a family of systems. We will look at capabilities across the board, not necessarily a one-for-one replacement out into the future.

To the F–18E/F and the G, we have 563 Super Hornets, Es and Fs, that are currently being delivered, and the last bunch is going to be delivered to us in 2015, and that will complete the buy. And that is our requirement, 563 Es and Fs that provisions 31 strike fighter squadrons on our carrier decks, including the attrition and reserve airplanes.

The EA–18G Growler, we currently have 138 in our program of record. That 138 airplanes is 10 squadrons that are in our carrier air wings, the 10 carrier air wings that support our 11 carriers that are currently in the budget, and then there are 5 expeditionary squadrons. The last 2 squadrons of the EA–18G Growlers are being built to take the place of the Marine EA–6B Prowlers that are going to go out of service in 2019.

If we were to get additional Growlers, what they would service is the joint mission. The 18G Growler, with the ALQ–99 pod now and the next-generation pod in the future, services a large part of the electromagnetic spectrum. And as the CNO [Chief of Naval Operations] has testified multiple times, it is the domination of the electromagnetic spectrum that is going to ensure that we can get into anti-access environments.

Having that high-end airplane with those high-end capabilities to address the electromagnetic threat allows us to be able to bring a family of systems. For instance, the F–35 is very, very capable in an electronic attack, but it has a narrow part of the spectrum. So the EA–18G supports in a complementary capability the F–35Bs and Cs when you put them forward. Families of systems called stand-in jammers that would get inside of those threat envelopes need to get standoff jamming support first before you get in there to allow us to have assured access.

So what we are looking at now, ma'am, is a series of studies that look at the validated requirements above 138 EA–18Gs to determine whether the joint fight, the interoperable fight, with the Marine Corps, the Navy, the Air Force, and our coalition partners requires additional EA–18Gs.

I will tell you that the CNO has testified that there are 22 Growlers on an unfunded requirements list. Of those 22 Growlers—and thanks for the omnibus that gave us $75 million in AP [advanced procurement]; so, we have a little bit of a discount there from Congress—congressional action earlier—we would take those 22 Growlers and increase the PMAA [Primary Mission Aircraft Authorization] of the squadrons on the flight decks from 5 to 7.

We have determined in our campaign analysis that, when you increase from 5 towards 8 aircraft, that actually gives us a knee in the curve to reduce the time of the campaign and increase the effectiveness of electromagnetic maneuver warfare.

Ma'am, I hope that answered all of your questions.

Ms. SANCHEZ. Well, we will have to digest everything you just told us and then probably come back with some more questions, Mr. Chairman. Thank you for the time.

Mr. TURNER. Mr. Wenstrup.

Dr. WENSTRUP. Thank you, Mr. Chairman.

Thank you all for being here.

Doctor, I have a question for you. And I do appreciate the Air Force having a continued effort with engine propulsion technology and developing that further. I think it is important not only for our capabilities and efficiency, but it—like anything else, it is important to our industrial base here.

And I saw that the Secretary in the budget—2015 budget allocated $1 billion for next-generation jet technology development.

And so my question is: Can you give me some detail on how this funding will be used and when it would be used?

Dr. LAPLANTE. Yeah. We are still working through the details of it; so, I can tell you just broadly what we are thinking.

So the program and the research area that has been ongoing—and it has been some excellent work sponsored, in part—began with DARPA [Defense Advanced Research Projects Agency], but then moved over to AFRL [Air Force Research Laboratory], is what we call adaptive engine technology.

What the $1 billion allows us to do is—without that, we were going to basically end with some technology development—piece part technology development about 2017, and we just did not have the money to take it further, which, of course, for all the reasons you said, you know, it is just—you know, we didn't want to stop it, but we had no choice with the budget.

With the billion dollars in there, we are going to be able to continue that and at least take it, I believe, potentially to an engineering development model. I am hoping—and there—depending on how mature the technology is, that we could further that even through the end of 2019 or so. Again, we are working through the details of it, of exactly how far it is going to take us.

I think, also, it is going to depend upon our assessment how mature the technology is as to how quickly we can go into an EDM [electric discharge machining]-type situation, but it is going to allow us basically—it doesn't completely get us to transition. You know, we all talk about the transition and the "valley of death." But it is a bridge that starts to bridge the "valley of death."

So it was a good thing that we are doing that and we are continuing it. And I hope we can. As a technologist, I think it is great work.

Dr. WENSTRUP. Well, I appreciate that. Thank you very much.

I yield back.

Mr. TURNER. Thank you.

Admiral, you mentioned in your testimony that meeting the Marine Corps F–35B IOC will require modification of aircraft to bring them up to the required hardware configuration and that the schedule to do so is tight.

What steps is the Navy taking to mitigate the risk that all required modifications will be done on time? We are aware that, previously, General Bogdan has indicated that it is not necessarily—some of these delays are not necessarily software development, they are actually completion of modifications. Do you have a comment?

Admiral GROSKLAGS. Yes, Mr. Chairman. I will address that for you.

This is not a technical issue for us. This is purely a management issue. We understand the technical changes that need to be made to the aircraft. The simple fact is we have competing priorities.

We have aircraft required for test. We have aircraft required for training our pilots to make sure that the pilots are trained and ready for initial operational capability. And we need to use those same—or take those same aircraft and turn them around and modify them to the appropriate IOC configuration. So it is a management issue. It is not a technical issue. So I just want to be clear on that.

What we are doing, quite honestly, is prioritizing. We are trying to ensure that, with the depot stand—the recent depot standup at Cherry Point last year, that gives us the facility to do the deep modernization work that needs to be done.

We have also established a small footprint at Yuma at the operational site so we can do limited modifications there.

Part of our approach is to try and bundle, if you will, the modifications that need to be done. So we are taking a close look at the scope of the modernization so we don't have to reach in to various parts of the aircraft more than one time.

So, in a nutshell, that is it. General Schmidle may have more insight to specific things the Marine Corps is doing, but it is really a management issue for us.

General SCHMIDLE. Again, if you like, just to pile on very briefly, in terms of the schedule for the modifications, we are, in fact, taking a very, very close look.

As General Bogdan said, this is actually—he mentioned it was his concern going to IOC. It is, we believe, the long pole in the tent right now, and we have got all kinds of focus on this, to include down to the squadron, to the individual airplane level, how many airplanes they need on the line to be able to fly, the sorties the pilots need to be able to get ready to IOC the jets so that we can declare IOC in the summer of 2015.

It clearly is a challenge, but we are absolutely laser-focused on it right now.

Mr. TURNER. My last question, Dr. LaPlante. You mentioned in your testimony that the Air Force has concern about the aerospace industrial base that supports engineering, design, and development of tactical fighter aircraft. You note that, when production of the F/A–18 and F–15 ends, there will be only one prime contractor producing tactical aircraft.

What steps is the Air Force taking in the FY 2015 and the future years to address this concern? And when you say we are accepting risk that some elements of the current aerospace industry capacity may atrophy, what specific skills are likely to atrophy and what would be the impact on the Nation's aerospace programs? And how do the Air Force long-range strike aircraft program and the Navy's Unmanned Carrier Launched Airborne Surveillance and Strike programs affect the industrial base necessary to develop and produce tactical fighter aircraft?

Dr. LAPLANTE. Yes. I appreciate the question.

There are key skill sets that, of course, are needed to build advanced tactical aircraft, some of which are common to the bomber. It is not completely a one-to-one correlation, but we can't talk much publicly about the bomber because of security classification.

But I think it has been—as we have been saying, it is identified to be going after mature technologies such to lower risk, something that is at high TRL [technology readiness levels], as they call it.

What the Air Force is doing consciously in that program is beginning to set up a feeder line, if you will, so when the first versions of the bomber start getting delivered, they have in there, for lack of a better word, the hooks and the blocks to put in future upgrades, that there is, frankly, a technology line and a technology demonstration line that can feed those future blocks.

I will tell you—I mean, I can't go into the details here because of the classification. I would say it is in the following type of areas: It is in materials. It is how we integrate and keep low observable technology with electronic attack. It is with advanced controls. Those are the kind of areas that we are very conscious of keeping the industrial base alive, and those are—could be common between advanced tactical and the bomber.

Do I think that that is by itself enough? I don't, actually. And I don't pretend to have all the answers here. But I will tell you what some of us are thinking is that exactly at this time is probably when—if you look back in history when, in the past, we have done, for lack of a better word, experimentation, whether it was in the 1990s or in the 1970s, where we kept prototyping, we kept ideas, we kept innovation going, we kept design teams going even for things that we didn't know if we were just going to put on the shelf, but that we were trying. And we were trying them between the technology community and the warfighter. We believe—there is many of us that believe we are in the era now where we need to be doing that.

Now, that is not a panacea for all of the industrial base. That will not deal with, for example, a production line being shut down. We have to think differently about that.

But I believe that we need to do some type of comprehensive experimentation program to feed not just the future bomber, which we already have some of that going on, which I can't go into be-

cause it is classified, but to feed whatever we end up with beyond F–35 and even F–35 itself.

In my experience, we often set up the mainstream program to have the hooks and the blocks, and then we kind of just assume industry will innovate and provide us the technology. Well, we also have to fund it. IRAD [independent research and development] can only go so far. So I believe we need to, as a Department—this isn't just in Air Force—set up such an experimentation program.

Thank you.

Mr. TURNER. Mr. Veasey.

Mr. VEASEY. Yes. I wanted to ask specifically about the retiring of the 283 A–10s. Now, when those A–10s are retired, all those planes are going to be replaced with F–16s and F–35 at many of those bases. Isn't that correct?

General FIELD. Yes, sir, it is.

Mr. VEASEY. Okay.

General FIELD. Except for one. One of the units is a Guard unit from Idaho, and they are going to become an active associate—or a classic associate, which means they are going to work with the Mountain Home F–15Es and fly those airplanes.

Mr. VEASEY. And the A–10—the role of the A–10 is basically—it is pretty much a single mission. It is just basically to provide ground support. Is that——

General FIELD. Sir, its primary mission is to provide close air support for troops on the ground that are fighting. It does some other things in terms of personnel recovery and some other air-to-ground missions as well, but that is its primary role, is in close air support. That is correct.

Mr. VEASEY. Okay. So when you land those things—because I know that the Air Force has also looked at retiring some B–1 bombers and even looked at retiring F–16s and F–15s.

And so I just wanted to know if you could expand just a little bit more on retiring some of those planes versus the A–10s.

General FIELD. Yeah. Sir, I think that was a misinterpretation of some previous discussions with folks.

When we talked about the A–10 decision, we went through a series of analysis to look at the effect that would have, and we compared that with what the Air Force brings to the table to the joint community.

Because, at the end of the day, we fight as a joint force and we need to be able to provide the capabilities to our brothers and sisters in the other services and our coalition partners.

So we looked through mobility. We looked through ISR. We looked through air superiority. We looked at command and control. And we looked at, you know, precision attack. And there are all kinds of facets to every one of those.

We also did a study with our—in the Air Force and we did some analysis and lessons learned with the Army on how we would perform the CAS mission, the close air support mission, if the A–10 did go away.

And when we looked across the spectrum of conflict that we might be having, when we looked into some of the higher-end issues that we might be facing in the future, it looked like the A–10 was the best of all bad options to take off the table.

There isn't a single airman in the Air Force that thinks this is a good idea. This is basically a budget-driven decision. So we came to the conclusion that we had to remove the A–10 because, if we took the whole fleet out, we could take a lot of the support structure and gain billions of dollars in savings, not millions of dollars in savings.

And so some of the examples that you referenced here are some of the things we looked at just to explain the comparison. So if we take the A–10 fleet out, we will save about $4.3 billion over the FYDP.

To get that kind of savings, if we took out F–16s, we would have to take—retire 350 F–16s, which affects about 14 squadrons. We would have to take out the entire B–1 fleet, 62 aircraft.

So why don't we want to take out the B–1 fleet? The B–1 provides most of our—you know, 38 percent of our long-range strike and is the only aircraft in the Air Force inventory that is going to use—be able to employ the JASSM [Joint Air to Surface Standoff Missile], which is a long-range cruise missile, between now and fiscal year 2019 and 2020. It is enormously capable and can do missions from CAS to deep strike and beyond.

The 350 F–16s—the amount of capability was just more so than the A–10 in terms of not just the CAS environment, but in other missions beyond that. We looked at ways that we could reduce readiness, and we have already—we are already down at what I would term a critical level in the readiness status of our combat air forces. And we would go even lower to the fact that we would take off—two to three squadrons would just not fly ever at a time for the near future.

So when we looked through that, we looked at the studies, we discussed it with our service partners, we decided that the A–10 was the best decision to make, even though nobody likes the result of that decision.

Mr. VEASEY. Thank you, Mr. Chairman.

Thank you.

Mr. TURNER. Gentlemen, thank you. We are going to conclude. They have called votes on the House floor. We appreciate all of your comments. And thank you for your service. We will be adjourned.

[Whereupon, at 2:03 p.m., the subcommittee was adjourned.]

A P P E N D I X

MARCH 26, 2014

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

MARCH 26, 2014

NOT FOR PUBLICATION UNTIL RELEASED BY
HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON TACTICAL AIR AND LAND FORCES
UNITED STATES HOUSE OF REPRESENTATIVES

DEPARTMENT OF DEFENSE

WRITTEN TESTIMONY FOR THE
HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON TACTICAL AIR AND LAND FORCES
UNITED STATES HOUSE OF REPRESENTATIVES

SUBJECT: Tactical Air Forces

WITNESS STATEMENT OF: Lt General Christopher C. Bogdan
Program Executive Officer F-35

March 26, 2014

NOT FOR PUBLICATION UNTIL RELEASED BY
HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON TACTICAL AIR AND LAND FORCES
UNITED STATES HOUSE OF REPRESENTATIVES

Chairman Turner, Ranking Member Sanchez, and distinguished Members of the Committee. Thank you for the opportunity to address this committee regarding the F-35 Lightning II.

The F-35 Lightning II is the Department of Defense`s largest acquisition program, and its importance to our national security is immense. The F-35 will form the backbone of U.S. air combat superiority for generations to come. It will replace the legacy tactical fighter fleets of the Air Force, Navy, and Marine Corps with a dominant, multirole, fifth-generation aircraft, capable of projecting U.S. power and deterring potential adversaries. For our international partners and Foreign Military Sales (FMS) customers who are participating in the program, the F-35 will become a linchpin for future coalition operations and will help to close a crucial capability gap that will enhance the strength of our security alliances. The FY15 budget includes $8.3 billion for continued system development, test and procurement of 34 F-35 aircraft.

It is our duty to produce the next generation fighter jet for the United States and our allies, understanding that we live in a resource constrained world. The current F-35 program is focused on completing System Design and Development within the time and funding planned, producing aircraft that are affordable and achieve mission needs, and sustaining fielded aircraft in an effective and economical fashion. This plan, which has been in place since 2012, is already resulting in steady progress; however, I am pressing for faster and stronger performance in the upcoming year. There are 59 F-35s now deployed in operational and training squadrons at five locations and the program has started a slow shift of focus to production and long-term sustainment without losing the

momentum we see in the development and flight test programs. Affordability remains my number one priority. We must use all of our energy finishing development within the time and money we have, we must continue to drive the cost of producing F-35s down, and we must start today to attack the long-term life cycle costs of the F-35 weapon system.

Program Accomplishments in the Last Year

The F-35 program team achieved a number of accomplishments in 2013, including delivery of 35 aircraft; rolling-out of the 100th jet from the production facility in Fort Worth; completion of the Block 3 Critical Design Review; announcing the decision to cease development of an alternate Helmet Mounted Display System (HMDS); and resolving lingering technical design shortfalls to include the F-35C Arresting Hook, Night / Instrument (IMC), Fuel Dump, and Lightning Protection.

F-35s flew 3,917 sorties (including System Development and Demonstration (SDD) and Low Rate Initial Production (LRIP)) for a total of 6,255 hours last year, bringing the total hours flown by F-35s to 11,873. The Program completed the second F-35B Ship-Trial period operations aboard the USS Wasp completing 95 vertical landings and 94 short takeoffs, with 19 night takeoffs. The Program stood up new F-35 squadrons at Edwards Air Force Base, Nellis Air Force Base, and Eglin Air Force Base, made Marine Corps Air Station Beaufort ready for F-35 operations, started up aircraft modification lines at Fleet Readiness Center East and at the Ogden Air Logistics Center, opened the first overseas F-35 final assembly and checkout (FACO) facility in Italy, and qualified 65 pilots and trained 414 maintainers. From a business perspective, the F-35

program successfully closed negotiations and awarded the Lockheed Martin LRIP lots 6 and 7 contracts and modified the SDD contracts. Additionally, the program definitized the Pratt & Whitney LRIP lot 5 contract, and awarded LRIP lot 6, and modified the SDD contract during 2013.

Although sequestration, as well as congressionally directed reductions to the SDD program in FY13, had the potential to either stretch the development program out or reduce the capabilities we can deliver to the warfighter, we were able to mitigate the impacts to the development program and remain on our program plan. The Bipartisan Budget Act of 2013 also allowed us to preserve the number of jets we intend to procure in FY14.

International Partnership

The F-35 program continues to be the Department of Defense's largest cooperative program, with eight Partner countries participating under Memorandums of Understanding for System Development and Demonstration (SDD) and for Production, Sustainment and Follow-on Development (PSFD). The eight partner countries include the United Kingdom, Italy, The Netherlands, Turkey, Canada, Australia, Denmark, and Norway. The partners' senior acquisition leaders met in September 2013 and are meeting again the first week of April 2014; all expressed their continued commitment and support for the program; however, they are all watching closely how the Department of Defense (DoD) deals with our budget cuts and the impact this has on the cost of the program. Conversely, we are also watching our partners as nearly 45% of the next 5 years of production buys are from our partners and FMS customers.

In October 2010, Israel signed a letter of offer and acceptance to purchase 19 F-35A aircraft for $2.75 billion, with deliveries scheduled to begin in 2016. In June 2012, Japan signed an agreement to purchase the first four of a planned acquisition of 42 F-35A aircraft for $741M with deliveries scheduled to begin in 2016. The F-35 team developed a proposal to support the Republic of Korea's competitive Request for Proposal for acquisition of its future fighter. Selection is expected by the end of this year and we continue to provide program information to the Republic of Singapore.

There were many "firsts" during the year including the delivery and acceptance of two Netherlands F-35A aircraft, the first Australian and Italian aircraft under contract (LRIP 6), the first Norwegian aircraft under contract (LRIP 7) and the first Netherlands pilot in training.

Development Program Performance

The F-35 development program continues to execute to the baseline approved at the March 2012 Milestone B recertification Defense Acquisition Board. My biggest technical concern in development is still software. Over the past two years, the program has implemented significant changes in how system software is developed, lab tested, flight tested, measured, and controlled. These changes are showing positive effects and I am moderately confident that the program will successfully release the Block 2B and 3I capability as planned in 2015 and 2016, respectively. However, I see more risk to the delivery of Block 3F, our full warfighting, capability by 2017. Block 3F is dependent upon the timely release of Block 2B and 3I, and at present, 3F is tracking approximately four to six months late without taking steps to mitigate that delay.

The F-35 Joint Program Office continues to exercise oversight and management of software development, which has resulted in reduced times to develop and integrate software, reduced errors in the software code developed, and a marked increase in the cooperation and understanding between the prime contractor and the program office. I have directed a Capability Block Plan that is an integrated roadmap that defines the incorporation of capabilities for the F-35 program. Additionally, I have instituted a Block Review Board which places the government in charge of all configuration, capability, and schedule changes to software development. We have also implemented robust systems engineering/technical review process for all development work to provide greater knowledge and defined decision gates to determine if the system configuration under consideration is mature enough to proceed to the next phase. This, coupled with improved automated tools and processes, has resulted in an almost tenfold reduction in software release build time, and we have seen corresponding improvements in configuration management, test automation, and error detection and resolution. However, we still have challenges and the prime contractor and its subs still need to improve both the speed and quality of software development to be able to catch up from previous software delays.

In addition to software challenges, the three F-35 variants are encountering the types of development problems typically experienced on advanced state-of-the-art, high performance aircraft development programs at this stage of maturity, such as reliability and maintainability shortfalls, and beyond first life durability issues. While we still have technical risks on the program, I have confidence that the known technical issues we have will be solved and properly integrated into the F-35 and we will be capable of dealing

with any future technical issues.

Over the past year, the program office successfully characterized the expected performance of the Gen II HMDS to support U.S. Marine Corps Initial Operational Capability (IOC) and defined the technical solutions to be incorporated into the follow-on Gen III HMDS to achieve a fully compliant capability for the warfighter. The improved night vision camera was evaluated in a series of risk reduction flight tests showing significant improvements over the older camera, and we are confident it will be able to meet the warfighter's requirements when integrated into the Gen III helmet. Based upon a thorough technical evaluation, of the Gen II helmet, successful incorporation of technical improvements and a better business deal, the Department elected to end development of the second, alternative helmet. With respect to the better business deal, the program secured a cost guarantee made by the Lockheed Martin/Rockwell Collins/Elbit team resulting in a reduction of 12% from the previous cost for the helmet system. Additionally, deciding to down select to the Gen II and III helmet will avoid future cost of $45 million required to completely mature the alternate helmet. The Gen III HMDS is expected to enter formal F-35 flight test in third quarter 2014.

The program also saw improvements with the redesigned F-35C arresting hook system on our CF-3 aircraft. In January 2014, the F-35 team accomplished 36 for 36 successful roll-in arrestment tests at Lakehurst, NJ. The aircraft is now at Patuxent River where it is continuing its ship suitability testing. Thus far CF-3 accomplished 8 for 8 fly in arrestments while at Patuxent River; however, testing has been delayed for approximately 60 days as we discovered a minor nose gear issue. These tests are expected to lead to a certification of the F-35C for shipboard flight trials, which are

planned to commence fourth quarter 2014.

The program has also made progress on the redesigned fuel dumping seal and port. The F-35 employs a unique fuel dumping port on the underside of the wings in order to maintain its stealthy signature. Early fuel dump testing revealed that fuel was collecting within the wing flaperon cove, which led to significant external fuel wetting and pooling of fuel at the wing/fuselage root. We redesigned the fuel dump port to more efficiently move fuel away from the wing surface and designed a new and improved flaperon seal to minimize fuel collecting in the cove. Fuel dump testing with the redesigned seal and port has been successful and we are incorporating the new design in all three variants.

We have also seen significant progress in our ability to fly at night and Instrument Meteorological Conditions (IMC). The Navy granted clearance and conducted the first night flights on the F-35B (VMFA-121) in December 2013. Subsequently, in January 2014, the Navy granted night/IMC clearance for the F-35C. The Air Force also granted night/IMC clearance for the F-35A in January 2014, although initially weather restricted to a ceiling greater than 600 feet and visibility greater than two nautical miles. In March 2014, the Air Force lifted the restrictions following additional simulator evaluations, allowing the F-35 aircraft to fly to weather minimums posted by the airfields.

All LRIP lot 6 and later aircraft will be delivered with night / IMC capability. LRIP lot 5 aircraft require an improved landing/taxi light prior to operating in night/IMC. LRIP lot 4 aircraft require a planned aircraft software update as well as improved wingtip and landing/taxi lights. All possible software updates have been accomplished, and the lighting upgrades are in progress. LRIP lot 3 and earlier aircraft require the Block 2B

upgrade planned to begin in late 2014 to gain night/IMC capability.

We currently have 11 F-35As, 6 F-35Bs, and 1 F-35C fleet aircraft configured and certified for night/IMC. The remaining LRIP lots 4 and 5 fleet aircraft are either in process or awaiting the wingtip and landing/taxi light modifications for night/IMC. The program has also made progress on lightning protection. In 2009, fuel system simulator testing revealed deficiencies in the On Board Inert Gas Generation System's (OBIGGS) ability to maintain the necessary tank inerting to protect the aircraft from lightning strikes. The program completely redesigned the OBIGGS and performed a F-35B ground test that verified inerting distribution in the tanks. Ground and flight tests are planned for second quarter 2014 where we expect to evaluate fuel system performance and prevention of nuisance alerts. A unique opportunity occurred with the availability of the Netherlands F-35A aircraft; our team took advantage of the aircraft to test for lightning electrical transient stress to aircraft subsystems in the Fall of 2013. The aircraft was subjected to 865 simulated low level "lightning strikes," and we are happy to report that the aircraft received no damage, all subsystems worked appropriately, and the aircraft's reaction to the lightning strikes closely matched engineering models. Aircraft that have OBIGGS inerting and subsystems that can function with lightning electrical transients are expected to allow the removal of the lightning flight restrictions by the beginning of 2015.

In September 2013, during F-35B full-scale durability testing we experienced a significant bulkhead crack at 9,056 Equivalent Flight Hours (EFH), which is 1,056 beyond its first lifetime. In August 2013, just after completing 9,000 EFH, a planned inspection of the F-35B full scale durability test article verified the existence of two small

cracks along the Fuselage Section (FS) 496 Bulkhead. The decision was made to move forward with the testing and to inspect the bulkhead at shorter intervals in order to observe if and how the crack would propagate. In September 2013, strain gauge data prompted an early inspection of the bulkhead which uncovered that the cracks had propagated and severed the bulkhead at the lower arch. The durability testing was stopped and a root cause investigation was conducted. The goal of durability testing is to apply cyclic loads to the airframe to simulate fleet usage. Durability testing is conducted early in the development of any new aircraft to avoid costly sustainment issues later in the life of the aircraft. We require 8,000 EFH of aircraft service verified by testing of two lifetimes (16,000 EFH). However, to aid in life extension assessment, we plan to test each variant up to 3 times its expected operational life (24,000 EFH). Our engineering teams executed a joint root cause investigation to define the required modifications to the bulkhead for incorporation into production and retrofit of the fleet. This effort is part of the normal program concurrency process to ensure full life capability and we budgeted for these types of durability test findings in production via concurrency modeling. The full-life design solution for the bulkhead has been defined and is scheduled for production line induction not later than LRIP lot 9 aircraft deliveries in 2017. We are also working with Lockheed Martin to incorporate a speedier retrofit solution to be incorporated into 10 LRIP lot 8 B-Model aircraft that are currently on the production line.

There was no immediate airworthiness concern for fielded and test aircraft because of the high hours accrued on this test article at the time of discovery. It will not impact the U.S. Marine Corps ability to meet IOC in 2015. Additionally, due to the differences between the bulkhead forging materials of the F-35B (Aluminum) and the F-

35A/C (Titanium), we have yet to see the same cracking with the A and C models at the equivalent flight hours.

Reliability and Maintainability (R&M) remains an area for needed improvement. The fleet has not performed to the R&M levels we expect at this point in the program as fielded aircraft are well below our projected growth curves. To address these issues I am executing a multi-phase R&M improvement process. First, I have stood up a fully funded rigorous R&M program that will establish R&M performance goals, take specific actions to achieve these goals, and hold the enterprise accountable for meeting them. We have a good amount of fleet data at this point to include parts systems and procedures that drive up costs, maintenance, as well as reduce readiness and aircraft availability. We are analyzing this data to make actionable decisions, such as redesigning parts, improving repair times, and streamlining and improving maintenance procedures. Finally, I am accelerating aircraft retrofits and modifications to more rapidly improve readiness and to measure these R&M improvements.

I have also stood up a Cost War Room whose mission is to champion affordability initiatives to reduce the operation and sustainment costs of the fleet. This Cost War Room is comprised of representatives from prime contractors and their suppliers, under the direction of Program Office personnel, and is systematically looking at all the cost drivers that make up the F-35 operations and sustainment costs with the intent of taking specific actions that will reduce long-term costs. We are also nearing completion of a Second Business Case Analysis and a Level of Repair Analysis to assist the leadership in making future sustainment decisions as we begin to create the global sustainment posture.

The Autonomic Logistics Information System (ALIS) provides maintenance,

operations planning, reliability, logistics, and training information to support sustainment of F-35 aircraft. We have fundamentally changed the manner in which we are developing and fielding ALIS. Before, we treated ALIS as a piece of support equipment. The enterprise now deals with ALIS as if it is a "weapons system" and a critical part of the F-35 program. We have added a new systems engineering process that includes periodic design reviews, a new leadership structure, improved lab infrastructure and testing to include warfighter involvement, and a more structured software delivery plan to include metrics. We have seen some solid improvements since these changes last year as the program has delivered better and faster incremental fixes, including our recent software update that was fielded in February. I have also put into place a plan for a complete end-to-end test that includes information assurance testing to ensure the aircraft and ALIS can operate together seamlessly with a great level of "cyber security."

We have also started the design of a deployable version of ALIS to support the warfighters. The requirements were finalized and a Critical Design Review was held in February 2014. The first phase of deployable ALIS will be delivered in April 2015 to support the U.S. Marine Corps IOC, while a second version, which will include additional Air Force requirements, is scheduled by be delivered by fourth quarter 2016.

From January 2011 to August 2012, the DoD Inspector General (IG) conducted an audit of the F-35 ALIS. The DoD IG provided the program with a set of recommendations, which we either concurred or partially concurred with, and are in various stages of implementation. For example, in the information systems security area, the employment of U.S. Air Force systems and processes to track the Certification and Accreditation posture, in addition our early engagement strategy with Services certifying

officials, continues to improve the overall Certification and Accreditation process. Furthermore, the tracking of foreign developed software, independent software test actions, and the supplement to the System Threat Assessment Report, expected by June 2014, will help us inform ALIS specific threat actions and decisions. Although we have not implemented the recommendation to separate ALIS as a Major Automated Information System program, as I previously mentioned, the enterprise now deals with ALIS as if it is a "weapons system" and a critical part of the F-35 program. I believe separating ALIS from the Air System, three years before the end of development activities, will introduce significant integration, implementation, and management risks with undesirable effects to the program budget, schedule, and Air System performance.

In 2013, the F-35 SDD Flight Test program exceeded the number of planned flights, but fell slightly behind in overall test point accomplishments. The Integrated Test Force (ITF) achieved 1,168 test flights of 1,153 planned, slightly exceeding the total flights in 2012. The ITF also executed 9,032 test points, which was roughly 3.5% shy of what was planned. FY14 is a very critical and challenging year for flight test and we must improve test aircraft availability and reduce the amount of refly, regression and "growth" test points if we are to stay on track.

Pratt & Whitney SDD F135 engines have completed a total of 29,986 operating hours, 15,963 hours on flight-test engines, and a total of 5,565 hours of flying time on all three variants of F-35 aircraft. Pratt & Whitney is currently supporting flight test on all three variants at three locations. During FY13, the engine successfully demonstrated stall-free high angle of attack operations and successfully completed all engine air start testing.

The F135 engine did experience a significant test failure on 23 December 2013. An F-35B ground test engine suffered a failure of its 1st stage fan integrally bladed rotor (IBR, also known as a "blisk") while doing ground accelerated mission durability testing. This failure occurred on the highest time test engine in the F135 fleet with 2,192 operating hours; roughly 75% of the engine's required life. (By comparison, the high time SDD flight test engine has 622 flight hours and the high time operational engine has less than 250 flight hours). While the root cause of this failure is still under investigation, safety assessments have determined that the fleet can be safely operated by inspecting the 1st fan stage rotor at regular intervals until a new rotor is installed. A cost reduction redesign of this 1st stage rotor was already in progress before the test failures; consequently, lessons learned from the root cause analysis will be incorporated into the new redesign. We expect the production break in of the redesign in the late 2016 timeframe, with a retrofit of engines beginning in 2017. While the fan module that contains this IBR can be removed and replaced in the field, replacement of the IBR itself within the module is a depot level task.

The F-35 fleet experienced two fleet-wide groundings in January and February 2013 due to issues with the F135 engines. The first incident occurred in January 2013. An F-35B was forced to abort a takeoff for what would later be understood to be an improperly crimped fueldraulic hose in the F135 engine. The F-35B fleet was grounded for 19 days, but was returned to flight after confirming the integrity of all similar hoses in the engines. The program office put in place activities to better monitor and improve the quality of the hoses being provided for the engine, and continues to track this closely. The second incident grounded all variants of the F-35 for approximately seven days and

resulted from a crack discovered in the 3rd stage engine turbine blade. The engine in question had been flying at the highest heat and most significant stresses of any of the jets in the test and operational fleets, which contributed to this crack. After confirming the source of the crack, the fleet was inspected and returned to flight. Engineering work continues to assess the long-term implications of this turbine blade crack on the life of the F-35 engine, and the incident continues to be successfully managed in the fleet by monitoring the life usage of the turbine. Through incorporation of new quality inspection criteria during production all new engines are now being delivered with full life 3rd stage turbine blades.

To ensure Lockheed Martin and their suppliers keep focus on improving key areas of risk, the Defense Acquisition Executive has approved a plan that links improvement in the areas of software, ALIS, and R&M to the delivery of aircraft and the future ramp up of production. In particular, additional progress must be demonstrated before awarding a contract for higher production rates: 1. Software Builds for block 2B, 3i, and 3F, which is essential to achieving the desired combat capability of the F-35; 2. Reliability, which is not growing at an acceptable rate; 3. ALIS, which requires focused attention to meet schedule of performance metrics; 4. Closure of previously identified design issues through testing. Further, I have worked with the Navy and Air Force Acquisition Executives to ensure that the Acquisition Planning for LRIP lot 9 includes strong, event-based performance criteria while incentivizing Lockheed Martin and Pratt & Whitney to achieve the priorities I have just listed.

With regards to the Dual Capable Aircraft (DCA), we are continuing to execute a risk reduction strategy to prepare for DCA integration during Block 4 Follow-on

Development. Our risk reduction efforts include developing a detailed planning schedule for B61 integration on the aircraft, maturing the nuclear architecture design, refining the cost estimate, Nuclear Certification Requirements planning, and the initial Concept of Operations (CONOPS) documentation. All F-35 DCA Risk Reduction benchmarks will be complete by Summer 2015. DCA integration begins as part of Follow-on Development, comprised of Block 4A (2016-2022) and Block 4B (2018-2024). All software development, flight test, and nuclear certification activities will be conducted across Block 4A/4B development, resulting in an F-35 design certification in 2024. The Air Force will lead an operational certification process following design certification that is expected to be completed no earlier than 2025.

Production Program Performance

Costs for production aircraft continue to come down for each successive lot put on contract. The average aircraft unit cost for an LRIP lot 6 aircraft is 3.8% lower than LRIP lot 5 aircraft. An LRIP lot 7 aircraft has an average unit cost approximately 4.2% lower than LRIP lot 6 aircraft. I expect these trends to continue for many future production lots. Production efficiencies as well as economies of scale are both critical in the overall affordability of the F-35 program. In 2013, efforts were taken to improve affordability, with more cost sharing between the Government and Contractors with respect to cost reduction initiatives. This along with other cost reduction initiatives and economies of scale should result in the price of an F-35A, including an engine and profit, between $80M and $85M in 2019 in 2019 dollars. The other F-35 models have proportionally similar cost reduction goals.

In 2013, Lockheed Martin delivered 35 aircraft compared to 30 deliveries in 2012. This was despite the challenges posed by F-35B flight operations being shut down for a month due to an issue with the fuel-draulics hose as well as not being able to conduct any acceptance flight operations in the month of August due to the Fort Worth Joint Reserve Base runway being repaved. Deliveries included the last LRIP lot 4 aircraft and 10 of 32 LRIP lot 5 aircraft.

Production has been fairly stable and predictable. As of 2 March 2014, the overall production factory performance was tracking closely to the post Lockheed Martin stake plan with factory assembly performance 6 days behind plan. Production flight line performance improved from 57 days behind plan to 39 days behind plan. Efforts are continuing to further improve production flight line performance to ensure stable delivery of F-35s as we ramp up production. The Program continues to see improvements in design stability, parts availability, workforce stability, and shop floor discipline. The Joint Program Office, in partnership with the Defense Contract Management Agency (DCMA), continues to closely monitor progress and challenge the contractor and supply chain for greater quality improvements.

In 2013, Lockheed Martin, DCMA and the Joint Program Office jointly developed a corrective action plan in response to Lockheed Martin disclosures on specialty metals non-compliance. The supplier compliance assessment was completed in August 2013 and Lockheed Martin initiated ongoing surveillance activities to ensure future compliance.

Significant international supplier milestones were also achieved in 2013. Final Assembly and Check-Out (FACO) operations commenced in Cameri, Italy at Alenia

Aermacchi's co-production site in July. The first Italian FACO produced F-35 is now in the final assembly phase. In December 2013, Turkish Aerospace Industries, Inc. delivered its first co-production F-35 center fuselage, which was successfully mated with a forward fuselage component in February 2014 at the prime contractor's Forth Worth facility.

Pratt & Whitney has delivered 134 engines and 46 lift fans to date. For 2013, Pratt & Whitney's delivery rate was stable, increasing from 4 engines per month in 2012 to 4.3 in 2013. LRIP lot 6 engines are currently slightly ahead of contract delivery dates. However, far too often engine deliveries are interrupted by technical issues and manufacturing quality escapes resulting in product holds and material deficiencies that increase overall risk to meeting future production goals. My production and quality teams continue to work closely with Pratt & Whitney to resolve the systemic issues which result in these product holds.

With another year of demonstrated improvements in production, I have confidence in the program's ability to produce high quality F-35s and our ability to eventually ramp up production.

Concurrency

The DoD established the F-35 program in 2001 with a planned amount of concurrency that attempted to balance cost, risk, and the need for tactical aircraft modernization. That strategy introduced the risk that aircraft built in early production lots would require post-delivery modifications due to discoveries made during qualification, flight, and ground tests, or as a result of engineering analysis. These

concurrency modifications must also "cut in" to the production line which can have substantial cost and schedule effects. As we complete more and more testing, the risks and impact of concurrency should progressively decline. By the end of 2015, mission and vehicle qualification testing will be near completion, second-life fatigue testing will be complete for all variants, and flight test will have completed 80% of the design loads envelope. At this future point in the development program many of the technical risks that drive concurrency changes and costs should be discovered.

Over the past year, the F-35 concurrency cost estimate has remained stable at approximately 3% - 5% of recurring flyaway costs. The F-35 program will continue to work with Lockheed Martin to refine their estimates based on the known technical issues and potential technical issues that are forecasted for the remainder of SDD. We will also review and update the government concurrency estimate on a periodic basis as the program progresses through the remainder of SDD.

The F-35 Joint Program Office has worked collaboratively with Lockheed Martin to implement a joint concurrency management and execution system. This system has successfully reduced the length of time required to implement a change into the production line (19 months to approximately 13 months), thereby reducing the number of aircraft needing future modification and corresponding costs. Contract strategies are also in place to reduce concurrency costs to the Government. The LRIP lots 5, 6, and 7 contracts have a 50/50 cost sharing mechanism with no fee for concurrency changes known prior to the production contract award that will not be incorporated until after aircraft delivery. The F-35 Joint Program Office intends to include this same mechanism in the LRIP lot 8 contract currently being negotiated. This cost sharing approach is

intended to continue to motivate Lockheed Martin to incorporate concurrency changes as quickly as possible on the aircraft production line and minimize the need for conducting retrofit activities. Eventually, the government will move to a contracting strategy that places all risks and liability for concurrency changes to the contractors.

Operations and Sustainment Performance

The program continues to address the various issues arising from operating an aircraft still in development and providing the operators improved technical data and solutions to emerging issues. Overall, the reliability of the weapon system is still well below our predictions but is slowly improving and the prime contractors, Lockheed Martin and Pratt & Whitney are gradually resolving issues with spares and repair cycle times.

In 2013, the F-35 program continued pilot and maintenance training for F-35A and F-35B aircraft and started pilot and maintainer training for the F-35C with the Navy, Air Force and Marine Corps each having their own training squadron. As of today, we have completed transition training for 92 pilots and 1,059 maintainers. In addition, we initiated pilot and maintainer training for another one of our international partners, The Netherlands. In cooperation with the Joint Operational Test Team and Air Force Air Education and Training Command, the program successfully completed the Ready for Training Operational Utility Evaluation (OUE) which found that the training system is "sufficient to meet the relatively low student training sortie demand of the syllabus" for the training of experienced pilots.

In 2014, the program will complete the "stand up" of Luke Air Force Base and Marine Corps Air Station Beaufort to expand pilot training capacity and prepare for U.S.-based pilot training for our international partners and FMS customers. Additionally, aircraft will transfer to Edwards Air force Base to begin preparations for Block 2B Operational Test.

Concurrently we will focus on completing the design, procurement, and installation of modifications to allow the U.S. Marine Corps to achieve IOC by July 2015. We will also do this for the modifications needed for Operational Testing that starts spin up in January 2015. It is these modifications which are now on the critical path to U.S. Marine Corps IOC and Operational Test (OT); any delay in these aircraft modification programs will directly delay the start of these two important milestones. To accelerate these modifications, the program has activated modification lines at Marine Corps Air Stations Cherry Point and Yuma as well as Ogden Air Logistics Complex, and has developed a comprehensive aircraft modification program that is performing a value stream analysis and lean process to ensure the F-35 modifications are in place for IOCs and OT testing. Additionally, we were successful in standing up depot component repair activities at Ogden and Warner-Robins Air Logistics Complexes over the past year.

Reducing F-35 Sustainment costs and beginning the transition to a future global support and posture will be a key focus of 2014. We will begin to put in place the strategy to stand up our Regional Sustainment Capabilities in Europe and the Pacific and continue building our CONUS sustainment capabilities. Our Phase 2 Business Case Analysis, which is nearly completed, will be used to inform us on what the most effective and efficient Regional Sustainment construct should look like. Part of this global posture

will be the transition to performance based contracts to achieve Service, Partner, and FMS Customer readiness requirements. These early contracts will also allow me to assess the performance of the current interim Product Support Integrators' (PSIs) (Lockheed Martin and Pratt & Whitney) to assume this role on a more permanent basis.

The long-term sustainment costs of the program continue to be a key focus. My team and I are committed to providing the best-value support solution for all participants. We are undertaking a number of integrated efforts to drive down the cost of operating and sustaining the F-35 weapons system. In October 2013, the F-35 Joint Program Office stood up a Cost War Room whose mission it is to improve affordability in all aspects of the F-35 operations and sustainment costs. They are currently working on 48 opportunities to drive down or remove costs from the program. Linked to this Cost War Room effort is a strategy to define the most cost effective repair enterprise for the Services and Partners. This effort is underway with a Level of Repair Analysis on key components to determine what the optimum repair structure should look like.

The program has also instituted a robust R&M program that is systematically identifying cost and time drivers while continuing to contractually institute tighter repair turnaround times for suppliers to drive down repair times. As an integrated element of the R&M program, we have also stood up a Readiness Cell that is focusing on analyzing program metrics to improve aircraft availability. The Readiness Cell's mission is to identify opportunities to enable F-35 availability to greater than 60% by 2015 across all three variants. Some of the initiatives that the Readiness Cell is pursuing include: improving contracting practices to avoid gaps in line-replaceable component repair and

spares replenishment, and optimizing maintainer processes and procedures to reduce the amount of aircraft downtime between sorties.

The combination of our R&M program, our O&S Cost War Room, our Readiness Cell, our Level of Repair Analysis, and our Business Case Analysis is to produce a mutually beneficial sustainment enterprise that operates, manages and supports the global system with relevant metrics and incentives, while meeting warfighter-defined readiness and cost objectives. We still have much work to do to achieve this vision and it is one of my highest priorities.

Airframe and Propulsion Contract Actions

The program achieved a major milestone with the concurrent definitization/award of the LRIP lot 6 and 7 airframe contracts in September 2013. These contracts marked significant improvement in negotiation span time when compared to previous LRIP contracts. We need this trend to continue to ensure that our budgets, expenditures, contracting actions, and program actions are all synchronized. The Fixed Price Incentive Fee (FPIF) contract with Lockheed Martin for LRIP lot 6 is valued at $4.4 billion and procures 36 aircraft (18 F-35A, 6 F-35B, and 7 F-35C for the U.S. Services plus 5 F-35A for Participant nations) and ancillary equipment. The FPIF contract with Lockheed Martin for LRIP lot 7 is valued at $3.9 billion and procures 35 aircraft (19 F-35A, 6 F-35B, and 4 F-35C for the U.S. Services plus 5 F-35A and 1 F-35B for Participant nations) and ancillary equipment. The parties reached a fair, well-reasoned settlement that caps the government's liability. The negotiated price of the contract and all cost overruns are the responsibility of Lockheed Martin. In addition, we continue to share concurrency risk

with Lockheed Martin. The terms of the contract include a "cost-sharing/no fee" arrangement whereby the Government and Lockheed Martin share equally (50/50) in these concurrency costs with no fee for the known concurrency change retrofits.

The program definitized the LRIP lot 5 FPIF engine contract in April 2013 at a value of $1B for 32 engines and spares, as well as associated sustainment support/products. The final negotiated modification to the LRIP lot 6 FPIF engine contract was awarded in October 2013 bringing the total value to $1.1B for 36 engines and spares. Both contracts reflect a 0/100 overrun shareline with the contractor assuming all cost overrun risk and capping the government's liability at the negotiated value of the contract, another first for the engine program.

Proposal evaluation is underway for the lot 8 (FY14) airframe and lot 7 (FY13) and lot 8 (FY14) engine procurements. We believe we can have a final contract award for all of these procurements by the end of second quarter CY 2014. By negotiating the lots 7 and 8 engine procurements together, the program is striving to get out of the business of Undefinitized Contract Actions and attempting to align contracting actions with our budget and the actual production of aircraft and engines. Today we effectively have fixed price contracts in terms of cost overruns because the government has zero liability for cost overruns above the negotiated price of the aircraft and engines.

In the future, the program intends on moving towards fixed-price, multi-year contracts for both the aircraft and the engines. The F-35 Program will ensure that these future U.S. aircraft and engine procurements comply with Section 143 of the National Defense Authorization Act (NDAA) for FY12, which provides: "…[t]he Secretary of Defense shall ensure each of the following: (1) That the contract is a fixed-price contract.

(2) That the contract requires the contractor to assume full responsibility for costs under the contract above the target cost specified in the contract." We will also ensure that the requirements to enter multi-year procurements are met. In the meantime, we are encouraging Lockheed Martin and Pratt & Whitney to seek long-term agreements with their suppliers to stabilize the supply base and reduce overall procurement costs.

An effective Earned Value Management System (EVMS) is critical to monitoring performance and controlling costs. In 2007, a DCMA review found the Lockheed Martin Aeronautics (LM Aero) EVMS to be noncompliant with EVM guidelines. Although both DCMA and LM Aero engaged in a focused effort to bring the LM Aero EVMS into compliance, appropriate corrections were not completed and DCMA decertified the LM Aero EVMS in 2010. LM Aero created its EVMS Corrective Action Plan (CAP) during 2012 and DCMA re-certified the LM Aero EVMS in November 2013. In accordance with DoD Federal Acquisition Regulations, the DCMA had imposed a 5% withhold against Progress Payments for new F-35 contracts, starting with LRIP lot 5 as a result of the disapproved status of LM Aero's EVMS. Following recertification of LM Aero's EVMS, DCMA released the withhold, which amounted to $160 million, and authorized LM Aero to bill for the previously withheld amounts.

In October 2013, DCMA disapproved of Pratt & Whitney's EVMS used for F135 engines after finding deficiencies in their EVMS system. This action was expected based on Pratt & Whitney's incomplete response to Corrective Action Requests submitted by DCMA to Pratt & Whitney earlier in 2013 on contracts for F135 engines used in F-35 aircraft. DCMA found 16 significant deficiencies that affect four EVMS Guidelines. In accordance with the DoD Federal Acquisition Regulations, 5% of each request for

payment is withheld until all significant deficiencies are corrected. As of the end of February the withhold amount totaled $25.7 million. The F-35 Joint Program Office is working closely with DCMA to ensure Pratt & Whitney is in compliance with corrective actions.

2013 DOT&E Report

As you are most likely well aware, the Director, Operational Test and Evaluation (DOT&E) performed an independent assessment of the F-35 Program. This was conducted with the F-35 Program Office's full cooperation and unfettered access to information on the F-35 Program. Although the report is factually accurate, I do not believe it tells the full story as not enough credit is given for progress that has been made in reducing risk on this program. There were no surprise findings in the report, in fact, we agree and are taking action on 8 of the 9 recommendations in the report. The one recommendation that the F-35 enterprise has chosen not to pursue has to do with the fuel-draulic shut off system. An extensive cost/benefit analysis showed that the addition of the Polyalphaolefin (PAO) shut-off valve increases the F-35 survivability by less than 1% while adding additional development, production, reliability, and operating costs. The combination of stealth, data fusion, advanced sensors, advanced countermeasures, and electronic attack greatly reduce the chances of the aircraft being hit by enemy fire. Additionally, the F-35 Joint Program Office does not agree with DOT&E's assessment that mission systems software delays and Block 2B flight test growth will result in a 13-month delay in the 2B Fleet Release date. Block 2B software is currently undergoing flight test and security and verification testing with little to no schedule delays. The

program has established a process to track and manage software capability increments and to track execution of software builds to plan, including development, integration, flight test, and rework.

Conclusion

I believe the F-35 is headed in the right direction. The previous PEO developed a solid program baseline and it is now my team's job to successfully execute that plan. I believe the basic aircraft design is sound and we can deliver on our commitments to you, the taxpayers and warfighters. While there is still risk in the program, I have confidence in that we now have in place a robust management and leadership enterprise that can handle any future setbacks or discoveries and stay on track, so long as the program remains properly resourced.

Software development still remains our number one technical risk and a key focus area. We also must concentrate on standing up the global support posture, improve R&M, and drive costs out of the program. The changes implemented by the combined government/contractor team have improved this outlook, but more work still needs to be done. We will need excellent performance and continued support by all elements of the enterprise, including industry, the Congress, the Services, our partners, and my program office.

As in any complex development program there are challenges, but I believe the enhanced capability of the F-35 will provide the backbone of the U.S. combat air superiority for generations to come. The technological capabilities of the aircraft are sound. The program's leadership team is rising to the challenges of managing this

complex system with integrity, discipline, transparency and accountability. Our progress continues at a slow but steady pace. I intend on completing this program within the budget, schedule, and resources I have been given. I ask that you hold me, my team, our stakeholders, and contractors accountable over the coming years to ensure that we develop and deliver the warfighting capability this country and our partners need and expect.

Thank you again for this opportunity to discuss the F-35 Lightning II Program. I look forward to answering any questions you have.

BIOGRAPHY

UNITED STATES AIR FORCE

LIEUTENANT GENERAL CHRISTOPHER C. BOGDAN

Lt. Gen. Christopher C. Bogdan is the Program Executive Officer for the F-35 Lightning II Joint Program Office in Arlington, Va. The F-35 Lightning II Joint Program Office is the Department of Defense's agency responsible for developing and acquiring the F-35A/B/C, the next-generation strike aircraft weapon system for the Navy, Air Force, Marines, and many allied nations.

General Bogdan was commissioned in 1983 from the U.S. Air Force Academy. He has served as an operational pilot, test pilot, staff officer, executive officer, acquisition program manager, and program director. He is a command pilot and experimental test pilot with more than 3,200 flying hours in more than 35 aircraft types, including the KC-135, FB-111A, B-2 and F-16. He has commanded at the squadron and group levels, and served as the executive officer to the Commander, Electronic Systems Center, and to the Commander, Air Force Materiel Command.

General Bogdan also served as the Program Executive Officer for the KC-46 Tanker Modernization Directorate, Wright-Patterson AFB, Ohio.

Prior to his current assignment, General Bogdan was Deputy Program Executive Officer for the F-35 Lightning II Joint Program Office in Arlington, Va.

EDUCATION

1983 Distinguished graduate, Bachelor of Science degree in aeronautical engineering, U.S. Air Force Academy, Colorado Springs, Colo.
1989 Distinguished graduate, Squadron Officer School, Maxwell AFB, Ala.
1990 Distinguished graduate, USAF Test Pilot School, Edwards AFB, Calif.
1994 Master of Science degree in engineering management, with distinction, California State University, Northridge
1995 Distinguished graduate, Air Command and Staff College, Maxwell AFB, Ala.

1998 Air War College, by correspondence
2000 Distinguished graduate, Master of Science degree in national resource strategy, Industrial College of the Armed Forces, Fort Lesley J. McNair,Washington, D.C.
2005 Advanced Program Managers Course, Defense Systems Management College, Fort Belvoir, Va.
2006 U.S. Air Force Senior Leadership Course, Center for Creative Leadership, Greensboro, N.C.
2007 National Security Management Course, Maxwell School of Citizenship, Syracuse University, N.Y.
2013 Cyber Operations Executive Course, Air University, Maxwell AFB, Ala.

ASSIGNMENTS
1. July 1983 - June 1984, student, undergraduate pilot training, Reese AFB, Texas
2. June 1984 - November 1984, pilot, KC-135 crew training, Castle AFB, Calif.
3. November 1984 - March 1987, pilot, KC-135A and T-37A, 509th Air Refueling Squadron, Pease AFB, N.H.
4. March 1987 - April 1988, pilot, FB-111A Crew Training, Plattsburgh AFB, NY
5. April 1988 - June 1990, FB-111A instructor pilot, 393rd Bomb Squadron, Pease AFB, N.H.
6. June1990 - June 1991, student, Class 90B, U.S. Air Force Test Pilot School, Edwards AFB, Calif.
7. June 1991 - December 1991, experimental test pilot, 6512th Test Operations Squadron, Edwards AFB, Calif.
8. December 1991 - June 1995, B-2 experimental test pilot, B-2 Chief of Training, B-2 Test Program Manager and Assistant Deputy for Operations, 420th Flight Test Squadron, Edwards AFB, Calif.
9. June 1995 - June 1996, student, Air Command and Staff College, Maxwell AFB, Ala.
10. June 1996 - May1997, Program Manager, Theater Missile Defense Systems, Special Projects Program Office, Electronic Systems Center, Hanscom AFB, Mass.
11. May 1997 - June 1999, executive officer to the Commander, Electronic Systems Center, Hanscom AFB, Mass.
12. June 1999 - June 2000, student, Industrial College of the Armed Forces, Fort Lesley J. McNair, Washington, D.C.
13. June 2000 - May 2001, Deputy Commander, 412th Operations Group, Edwards AFB, Calif.
14. May 2001 - July 2002, Commander, 645th Materiel Squadron, Wright-Patterson AFB, Ohio
15. July 2002 - September 2003, executive officer to the Commander, Air Force Materiel Command, Wright-Patterson AFB, Ohio
16. September 2003 - June 2005, Commander, Special Operations Forces Systems Group, Wright-Patterson AFB, Ohio
17. June 2005 - May 2006, Deputy Director, Directorate of Global Power, Office of the Assistant Secretary of the Air Force for Acquisition, Headquarters U.S. Air Force, Washington, D.C.
18. May 2006 - May 2008, Senior Military Assistant to the Deputy Under Secretary of Defense for Acquisition and Technology, Office of the Secretary of Defense, Washington, D.C.
19. May 2008 - May 2009, Senior Military Assistant to the Under Secretary of Defense for Acquisition, Technology and Logistics, Office of the Secretary of Defense, Washington, D.C.
20. June 2009 – July 2012, KC-46 Program Executive Officer and Program Director, KC-46 Tanker Modernization Directorate, Aeronautical Systems Center, Wright-Patterson AFB, Ohio
21. July 2012 – December 2012, Deputy Program Executive Officer for the F-35 Lightning II Joint Program Office, Arlington, Va.
22. December 2012 – present, Program Executive Officer for the F-35 Lightning II Joint Program Office, Arlington, Va.

SUMMARY OF JOINT ASSIGNMENTS
May 2006 - May 2009, Senior Military Assistant to Deputy Under Secretary of Defense for Acquisition and Technology, and Senior Military Assistant to the Under Secretary of Defense for Acquisition, Technology and Logistics, Office of the Secretary of Defense, Washington, D.C.

FLIGHT INFORMATION
Rating: Command pilot, parachutist
Flight hours: More than 3,200
Aircraft flown: KC-135A/E, FB-111A, F-16A/B, B-2A, T-37A, T-38, B707, RC-135, T-39A and 25 other aircraft types

MAJOR AWARDS AND DECORATIONS
Defense Superior Service Medal
Legion of Merit
Meritorious Service Medal with six oak leaf clusters
Air Force Commendation Medal
Air Force Aerial Achievement Medal
Air Force Achievement Medal

OTHER ACHIEVEMENTS
Outstanding Cadet in Aeronautical Engineering, U.S. Air Force Academy
British Marshall Scholarship National Finalist
Rhodes Scholar Candidate, U.S. Air Force Academy
Distinguished graduate, KC-135 Training
Outstanding graduate, FB-111A Flight Instructor Course
Company Grade Officer of the Year, Air Force Flight Test Center

PROFESSIONAL CERTIFICATIONS
Program Management, Level III, Acquisition Professional Development Program
Test and Evaluation, Level III, APDP

EFFECTIVE DATES OF PROMOTION
Second Lieutenant June 1, 1983
First Lieutenant June 1, 1985
Captain June 1, 1987
Major March 1, 1995
Lieutenant Colonel Sept. 1, 1998
Colonel Aug. 1, 2002
Brigadier General Dec. 9, 2008
Major General Nov. 18, 2011
Lieutenant General Dec. 6, 2012

(Current as of December 2013)

United States Government Accountability Office

Testimony

Before the Subcommittee on Tactical Air and Land Forces, Committee on Armed Services, House of Representatives

For Release on Delivery
Expected at 12:30 p.m. EDT
Wednesday, March 26, 2014

F-35 JOINT STRIKE FIGHTER

Slower Than Expected Progress in Software Testing May Limit Initial Warfighting Capabilities

Statement of Michael J. Sullivan, Director
Acquisition and Sourcing Management

Chairman Turner, Ranking Member Sanchez, and Members of the Subcommittee:

Thank you for the opportunity to discuss our work on the F-35 Lightning II, also known as the Joint Strike Fighter (JSF). With estimated acquisition costs approaching $400 billion, the F-35 is the Department of Defense's (DOD) most costly and ambitious acquisition program. The program is developing and fielding a family of next generation fighter aircraft, incorporating low observable (stealth) technologies as well as advanced sensors and computer networking capabilities for the United States Air Force, Navy, and Marine Corps as well as eight international partners.[1] The F-35 family is comprised of three aircraft variants: (1) a conventional takeoff and landing (CTOL) variant, (2) a short takeoff and vertical landing (STOVL) variant, and (3) a carrier-suitable variant (CV). The F-35 is integral to U.S. and partner plans to replace existing fighter aircraft and support future combat operations. According to current plans, the U.S. portion of the program will require annual acquisition funding of more than $12 billion on average through 2037 to complete development and procure a total of 2,457 aircraft. In addition, the F-35 fleet is estimated to cost around $1 trillion to operate and support over its lifetime. In a time of austere federal budgets, cost projections of this magnitude pose significant fiscal challenges.

As we have reported in the past, DOD began the F-35 acquisition program in October 2001 without adequate knowledge about the aircraft's critical technologies or its design.[2] In addition, the program's acquisition strategy called for high levels of concurrency between development, testing, and production. As a result, the program encountered significant cost and schedule growth as well as performance shortfalls and was restructured three times: first in December 2003, then again in March 2007, and most recently in March 2012. The most recent restructuring

[1] The international partners are the United Kingdom, Italy, the Netherlands, Turkey, Canada, Australia, Denmark, and Norway. These nations contributed funds for system development and signed agreements to procure aircraft. In addition, Israel and Japan have signed on as foreign military sales customers.

[2]GAO, *Joint Strike Fighter: DOD Actions Needed to Further Enhance Restructuring and Address Affordability Risks,* GAO-12-437 (Washington, D.C.: June 14, 2012); *Joint Strike Fighter: Current Outlook Is Improved, but Long-Term Affordability Is a Major Concern,* GAO-13-309 (Washington, D.C.: Mar. 11, 2013); and *Joint Strike Fighter: Restructuring Places Program on Firmer Footing, but Progress Still Lags,* GAO-11-325 (Washington, D.C.: Apr. 7, 2011).

was initiated in early 2010, when the program's unit cost estimates exceeded critical thresholds established by statute—a condition known as a Nunn-McCurdy breach. DOD subsequently certified to the Congress in June 2010 that the program was essential to national security and needed to continue.[3] DOD then began efforts to significantly restructure the program and establish a new acquisition program baseline. These restructuring efforts continued through 2011 and into 2012, during which the department increased the program's cost estimates, extended its testing and delivery schedules, and reduced near-term aircraft procurement quantities by deferring the procurement of 410 aircraft into the future. The new F-35 acquisition program baseline was finalized in March 2012, and since that time, costs have remained relatively stable.

At the time the new F-35 acquisition program baseline was finalized, it did not identify new initial operational capability (IOC) dates for the three military services.[4] The following year DOD issued a memorandum noting that Marine Corps and Air Force were planning to field initial operational capabilities in July 2015 and August 2016, respectively, and that the Navy planned to field its initial capability in August 2018. The memorandum emphasized that the Marine Corps and Air Force initial operational capabilities would be achieved with aircraft that possess initial combat capabilities, and noted that those aircraft would need additional lethality and survivability enhancements to meet the full spectrum of warfighter requirements in the future. These new parameters represented a delay of 5 to 6 years from the program's initial 2001 baseline and a reduction in the capabilities expected at IOC.

[3] Section 2433 of title 10 of the United States Code, commonly referred to as Nunn-McCurdy, requires DOD to notify Congress whenever a major defense acquisition program's unit cost experiences cost growth that exceeds certain thresholds. This is commonly referred to as a Nunn-McCurdy breach. Significant breaches occur when the program acquisition unit cost or procurement unit cost increases by at least 15 percent over the current baseline estimate or at least 30 percent over the original estimate. For critical breaches, when these unit costs increase at least 25 percent over the current baseline estimate or at least 50 percent over the original, DOD is required to take additional steps, including conducting an in-depth review of the program. Programs with critical breaches must be terminated unless the Secretary of Defense certifies to certain facts related to the program and takes other actions, including restructuring the program. 10 U.S.C. § 2433a.

[4] Initial operational capability is obtained when organizations or units have received a specified number of systems and have the ability to employ and maintain those systems.

We have reported on F-35 issues for a number of years.[5] This testimony is based on and summarizes the results of our March 2014 report, which addresses the progress the F-35 program has made and the risks it still faces in the areas of development, testing, affordability, and manufacturing.[6]

For our March 2014 report, we reviewed and analyzed program briefings, management reports, program test results, and internal DOD program analyses. We discussed key aspects of F-35 performance with both military and private contractor test pilots. We interviewed F-35 program and aircraft prime contractor officials to discuss developmental testing. We also collected developmental test plans, and data on test achievements to assess program progress through December 2013. We obtained current program acquisition and life-cycle sustainment cost estimates, reviewed the supporting documentation and discussed the development of those estimates with DOD and prime contractor officials instrumental in producing them. We toured F-35 manufacturing and test facilities and obtained and analyzed production and supply chain data as of December 2013. We assessed the reliability of DOD and contractor data by reviewing existing information about the data, and interviewing agency officials knowledgeable about the data. We determined that the data were sufficiently reliable for the purposes of this report. We also discussed ongoing manufacturing process improvements with prime contractor and Defense Contract Management Agency (DCMA) officials. Further details about the scope and methodology can be found in our March 2014 report.

We conducted this work in accordance with generally accepted government auditing standards. Those standards required that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

In summary, delays in developmental flight testing of the F-35's critical software may hinder delivery of expected warfighting capabilities to the

[5] See related GAO products at the end of this statement.

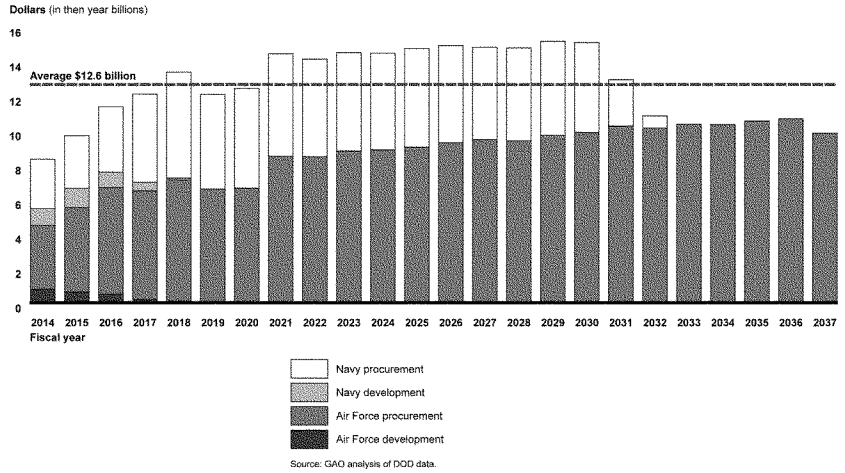
[6] GAO- F-35 *Joint Strike Fighter: Problems Completing Software Testing May Hinder Delivery of Expected Capabilities*, GAO-14-322 (Washington, D.C.: Mar. 24, 2014).

military services. F-35 developmental flight testing comprises two key areas: mission systems and flight sciences. Mission systems testing verifies that the software-intensive systems that provide critical warfighting capabilities function properly and meet requirements, while flight sciences testing verifies the aircraft's basic flying capabilities. Challenges in development and testing of mission systems software continued through 2013, due largely to delays in software delivery, limited capability in the software when delivered, and the need to fix problems and retest multiple software versions. The Director of Operational Test and Evaluation predicts delivery of warfighting capabilities could be delayed by as much as 13 months. Delays of this magnitude will likely limit the warfighting capabilities that are delivered to support the military services' initial operational capabilities—the first of which is scheduled for July 2015—and at this time it is not clear what those specific capabilities will be because testing is still ongoing. In addition, delays could increase the already significant concurrency between testing and aircraft procurement and result in additional cost growth. Without a clear understanding of the specific capabilities that will initially be delivered, Congress and the military services may not be able to make fully informed resource allocation decisions.[7] Flight sciences testing has seen better progress, as the F-35 program has been able to accomplish nearly all of its planned test flights and test points. Testing of the aircraft's operational capabilities in a realistic threat environment is scheduled to begin in 2015. The program has continued to make progress in addressing some key technical risks.

To execute the program as planned, the DOD will have to increase funds steeply over the next 5 years and sustain an average of $12.6 billion per year through 2037; for several years, funding requirements will peak at around $15 billion (see figure 1).

[7] We made a recommendation in our March 2014 report to address this issue which is discussed later in this statement.

Figure 1: Budgeted Development and Procurement Costs by Service, 2014-2037



Source: GAO analysis of DOD data.

Annual funding of this magnitude clearly poses long-term affordability risks given the current fiscal environment. The program has been directed to reduce unit costs to meet established affordability targets before full-rate production begins in 2019, but meeting those targets will be challenging as significant cost reductions are needed. Additionally, the most recent cost estimate for operating and supporting the F-35 fleet is more than $1 trillion, which DOD officials have deemed unaffordable. This estimate reflects assumptions about key cost drivers the program can control, like aircraft reliability, and those it cannot control, including fuel costs, labor costs, and inflation rates. Reliability is lower than expected for two variants, and the Director of Operational Test and Evaluation reports that the F-35 program has limited additional opportunities to improve reliability.

Aircraft manufacturing continued to improve in 2013, and management of the supply chain is evolving. As the number of aircraft in production has increased, critical learning has taken place and manufacturing efficiency

has improved. For example, the prime contractor has seen reductions in overall labor hours needed to manufacture the aircraft, as expected. In 2013, the contractor delivered 35 aircraft to the government, 5 more than it delivered in 2012 and 26 more than it delivered in 2011. The prime contractor has put in place a supplier management system to oversee key supplier performance.

In conclusion, DOD has made a number of difficult decisions to put the F-35 on a more sound footing. More such decisions may lie ahead. For example, if software testing continues to be delayed, if funding falls short of expectations, or if unit cost targets cannot be met, DOD may have to make decisions about whether to proceed with production as planned with less capable aircraft or to alter the production rate. Also, if reliability falls short of goals, DOD may have to make decisions about other ways to reduce sustainment costs, such as reduced flying hours. Eventually, DOD will be faced with making contingency plans for these and other issues. At this point, we believe the most pressing issue is the effect software testing delays are likely to have on the capabilities of the initial operational aircraft that each military service will receive. In order to make informed decisions about weapon system investments and future force structure, it is important that Congress and the services have a clear understanding of the capabilities that the initial operational F-35 aircraft will possess. Thus, in our March 2014 report we recommended that DOD assess the specific capabilities that realistically can be delivered and those that will not likely be delivered to each of the military services by their established initial operational capability dates, and share the results of that assessment with the Congress and military services as soon as possible but no later than July 2015. DOD agreed with our recommendation and noted that it would conduct an assessment and share the results with Congress and military services in a timely manner.

Chairman Turner, Ranking Member Sanchez, and members of the House Armed Services Committee, Subcommittee on Tactical Air and Land Forces this completes my prepared statement. I would be pleased to respond to any questions you may have. We look forward to continuing to work with the Congress as we continue to monitor and report on the progress of the F-35 program.

GAO Contacts and Acknowledgments

For further information on this statement, please contact Michael Sullivan at (202) 512-4841 or sullivanm@gao.gov. Contact points for our Office of Congressional Relations and Public Affairs may be found on the last page of this statement. Individuals making key contributions to this statement are Travis Masters, Pete Anderson, Marvin Bonner, Megan Porter, and Abby Volk.

Related GAO Products

F-35 Joint Strike Fighter: Problems Completing Software Testing May Hinder Delivery of Expected Warfighting Capabilities. GAO-14-322. Washington, D.C.: March 24, 2014.

F-35 Joint Strike Fighter: Current Outlook Is Improved, but Long-Term Affordability Is a Major Concern. GAO-13-309. Washington, D.C.: March 11, 2013.

Joint Strike Fighter: DOD Actions Needed to Further Enhance Restructuring and Address Affordability Risks. GAO-12-437. Washington, D.C.: June 14, 2012.

Joint Strike Fighter: Restructuring Added Resources and Reduced Risk, but Concurrency Is Still a Major Concern. GAO-12-525T. Washington, D.C.: March 20, 2012.

Joint Strike Fighter: Restructuring Places Program on Firmer Footing, but Progress Is Still Lagging. GAO-11-677T. Washington, D.C.: May 19, 2011.

Joint Strike Fighter: Restructuring Places Program on Firmer Footing, but Progress Still Lags. GAO-11-325. Washington, D.C.: April 7, 2011.

Joint Strike Fighter: Restructuring Should Improve Outcomes, but Progress Is Still Lagging Overall. GAO-11-450T. Washington, D.C.: March 15, 2011.

Joint Strike Fighter: Accelerating Procurement before Completing Development Increases the Government's Financial Risk. GAO-09-303. Washington D.C.: March 12, 2009.

Joint Strike Fighter: Recent Decisions by DOD Add to Program Risks. GAO-08-388. Washington, D.C.: March 11, 2008.

Joint Strike Fighter: Progress Made and Challenges Remain. GAO-07-360. Washington, D.C.: March 15, 2007.

Joint Strike Fighter: DOD Plans to Enter Production before Testing Demonstrates Acceptable Performance. GAO-06-356. Washington, D.C.: March 15, 2006.

GAO's Mission	The Government Accountability Office, the audit, evaluation, and investigative arm of Congress, exists to support Congress in meeting its constitutional responsibilities and to help improve the performance and accountability of the federal government for the American people. GAO examines the use of public funds; evaluates federal programs and policies; and provides analyses, recommendations, and other assistance to help Congress make informed oversight, policy, and funding decisions. GAO's commitment to good government is reflected in its core values of accountability, integrity, and reliability.
Obtaining Copies of GAO Reports and Testimony	The fastest and easiest way to obtain copies of GAO documents at no cost is through GAO's website (http://www.gao.gov). Each weekday afternoon, GAO posts on its website newly released reports, testimony, and correspondence. To have GAO e-mail you a list of newly posted products, go to http://www.gao.gov and select "E-mail Updates."
Order by Phone	The price of each GAO publication reflects GAO's actual cost of production and distribution and depends on the number of pages in the publication and whether the publication is printed in color or black and white. Pricing and ordering information is posted on GAO's website, http://www.gao.gov/ordering.htm. Place orders by calling (202) 512-6000, toll free (866) 801-7077, or TDD (202) 512-2537. Orders may be paid for using American Express, Discover Card, MasterCard, Visa, check, or money order. Call for additional information.
Connect with GAO	Connect with GAO on Facebook, Flickr, Twitter, and YouTube. Subscribe to our RSS Feeds or E-mail Updates. Listen to our Podcasts. Visit GAO on the web at www.gao.gov.
To Report Fraud, Waste, and Abuse in Federal Programs	Contact: Website: http://www.gao.gov/fraudnet/fraudnet.htm E-mail: fraudnet@gao.gov Automated answering system: (800) 424-5454 or (202) 512-7470
Congressional Relations	Katherine Siggerud, Managing Director, siggerudk@gao.gov, (202) 512-4400, U.S. Government Accountability Office, 441 G Street NW, Room 7125, Washington, DC 20548
Public Affairs	Chuck Young, Managing Director, youngc1@gao.gov, (202) 512-4800 U.S. Government Accountability Office, 441 G Street NW, Room 7149 Washington, DC 20548

Michael J. Sullivan
Director, Acquisition and Sourcing Management Team
U.S. GAO, Dayton Field Office
(937)258-7915
sullivanm@gao.gov

Mr. Sullivan currently serves as Director, Acquisition and Sourcing Management, at the U.S. Government Accountability Office. This group has responsibility for examining the effectiveness of DOD's acquisition and procurement practices in meeting its mission performance objectives and requirements. In addition to directing reviews of major weapon system acquisitions such as the F-35 Joint Strike Fighter, F-22 Raptor, Global Hawk, and various other major weapon acquisition programs, Mr. Sullivan has developed and directs a body of work examining how the Department of Defense can apply best practices to the nation's largest and most technically advanced weapon systems acquisition system. This work has spanned a broad range of issues critical to the successful delivery of systems, including technology development; product development; transition to production; software development; program management; requirement-setting; cost estimating; and strategic portfolio management. The findings and recommendations from this work have played a major role in the department's recent acquisition policy revisions. Most recently, he has directed the GAO's annual assessment of major weapon systems programs for the Congress and GAO's work with Congress in establishing acquisition policy reforms. His team also provides the Congress with early warning on technical and management challenges facing these investments.

Mr. Sullivan has been with GAO for 27 years. He received a bachelor's degree in Political Science from Indiana University and a Masters Degree in Public Administration from the School of Public and Environmental Affairs, Indiana University.

NOT FOR PUBLICATION UNTIL RELEASED BY
THE HOUSE ARMED SERVICES COMMITTEE
TACTICAL AIR AND LAND FORCES
SUBCOMMITTEE

STATEMENT OF

VICE ADMIRAL PAUL A. GROSKLAGS
PRINCIPAL MILITARY DEPUTY, ASSISTANT SECRETARY OF THE NAVY
(RESEARCH, DEVELOPMENT AND ACQUISITION)

AND

LIEUTENANT GENERAL ROBERT E. SCHMIDLE, JR.
DEPUTY COMMANDANT FOR AVIATION

AND

REAR ADMIRAL MICHAEL C. MANAZIR
DIRECTOR, AIR WARFARE, OPNAV N98

BEFORE THE

TACTICAL AIR AND LAND FORCES SUBCOMMITTEE

OF THE

HOUSE ARMED SERVICES COMMITTEE

ON

DEPARTMENT OF THE NAVY'S AVIATION PROCUREMENT PROGRAMS

MARCH 26, 2014

NOT FOR PUBLICATION UNTIL RELEASED BY
THE HOUSE ARMED SERVICES COMMITTEE
TACTICAL AIR AND LAND FORCES SUBCOMMITTEE

INTRODUCTION

Mr. Chairman, Ranking Member Sanchez, and distinguished members of the Subcommittee, we thank you for the opportunity to appear before you today to discuss the Department of the Navy's (DoN) Aviation programs. Our testimony will provide background and rationale for the Department's Fiscal Year 2015 budget request for aviation programs aligning to our strategic priorities and budgetary goals.

The United States is a maritime nation with global responsibilities. Our Navy and Marine Corps' persistent presence and multi-mission capability represent U.S. power projection across the global commons. They move at will across the world's oceans, seas and littorals, and they extend the effects of the sea-base deep inland. Naval Aviation provides our nation's leaders with "offshore options" where needed, when needed. We enable global reach and access, regardless of changing circumstances, and will continue to be the nation's preeminent option for employing deterrence through global presence, sea control, mission flexibility and when necessary, interdiction. We are an agile strike and amphibious power projection force in readiness, and such agility requires that the aviation arm of our naval strike and expeditionary forces remain strong.

There are several central themes to our 2015 Naval Aviation Budget plan: 5th generation fighter/attack capability; persistent multi-role intelligence, surveillance, and reconnaissance; supporting capabilities such as electronic attack, maritime patrol, and vertical lift; robust strike weapons programs; and targeted modernization of the force for relevance and sustainability.

First, we are acquiring F-35 5th generation fighter/attack aircraft while maintaining sufficient TACAIR inventory capacity. Our plan will integrate 5th generation technologies into the carrier air wing and expeditionary forces while maintaining and modernizing the capability of the current TACAIR fleet. The F-35B will replace Marine Corps F/A-18 and AV-8B aircraft. The F-35C, F/A-18E/F, and EA-18G provide complementary capabilities that enhance the versatility, lethality, and survivability of our air wings. We have maintained our F-35B procurement profile achieving program procurement stability in line with the improvements in program accountability, discipline and transparency. However, due to fiscal constraints and Navy priorities, we were compelled to reduce F-35C procurement by 33 airframes across the Future Years Defense Program (FYDP). The overall F-35 development program is adequately resourced and has implemented realistic schedule planning factors to complete System Development and Demonstration. The Navy and Marine Corps are fully committed to the F-35B and F-35C variants as we believe this aircraft is on solid path to delivering required capabilities.

The F/A-18A-F will continue to receive capability enhancements to sustain its lethality well into the next decade. Future avionics upgrades will enable network-centric operations for situational awareness and transfer of data to command-and-control nodes. To meet the demand for persistent, multi-role intelligence, surveillance, and reconnaissance (ISR) capability, the Navy and Marine Corps are building a balanced portfolio of manned and unmanned aircraft focused on missions in the maritime environment. The Unmanned Carrier Launched Airborne Surveillance and Strike (UCLASS) system will provide a persistent aircraft carrier-based ISR and strike capability as an integral part of carrier air-wing operations no later than the early part of the next decade. MQ-4C Triton will provide persistent land-based maritime ISR and complement our P-8 Multi-Mission Maritime Aircraft (MMA); MQ-8 Vertical Takeoff and Landing Tactical Unmanned Aerial Vehicle (VTUAV)/Firescout will provide ISR support to our Littoral Combat Ships (LCS); and smaller unmanned systems as the RQ-21A Small Tactical Unmanned Aircraft System (STUAS) and RQ-7B Marine Corps Tactical UAS (MCTUAS) will provide the shorter duration, line-of-sight reconnaissance capability integral at the unit level.

The Fiscal Year 2015 Budget request enables Naval Aviation to continue recapitalization of our aging fleets of airborne early warning, maritime patrol, and vertical lift platforms. The Department is recapitalizing our fleet of E-2C airborne early warning aircraft with the E-2D. E-2D integrates a new electronically-scanned radar that provides a two-generation leap in technology with the capability to detect and track existing and emerging air-to-air and cruise missile threats in support of Integrated Air and Missile Defense (IAMD). We have deployed our first P-8A squadron and are on a path to replace the P-3C by the end of the decade. Electronic attack capabilities, both carrier-based and expeditionary, continue to mature with eleven of sixteen EA-18G squadrons fielded or in transition, while we also continue development of the Next Generation Jammer (NGJ) to replace the legacy ALQ-99 Tactical Jamming System.

The Navy and Marine Corps are participating in Joint Future Vertical Lift efforts to identify leverage points for future rotorcraft investment. In Fiscal year 2015, the Department continues to modernize vertical lift capability and capacity with procurement of MH-60R/S, AH-1Z, UH-1Y, and MV-22B, and the continued development of the CH-53K and VXX (Presidential Helicopter replacement). The Special Purpose Marine Air-Ground Task Force-Crisis Response (SPMAGTF-CR), designed to support U.S. and partner security interests throughout the AFRICOM area of responsibility (AOR), leverages these vertical lift investments. The unparalleled speed and range of the MV-22B, together with the KC-130J, provides the SPMAGTF-CR with the operational reach to respond to crises throughout the AOR.

Within our Fiscal Year 2015 Budget request, the Department continues investment in strike weapons programs. These include the Air Intercept Missile (AIM-9X/BLK II); Small Diameter Bomb II (SDB II); the Joint Standoff Weapon (JSOW C-1); Tactical

Tomahawk Cruise Missiles (TACTOM/BLK IV); the Offensive Anti-Surface Weapon (OASuW); the Advanced Anti-Radiation Guided Missile (AARGM); the joint Air-to-ground Missile (JAGM); and the Advanced Precision Kill Weapon System (APKWS II).

These capabilities enable our Navy and Marine Corps warfighters to deter and dominate potential adversaries in any environment.

TACTICAL AVIATION (TACAIR)

F-35B/F-35C Lightning II:

The Department of the Navy remains firmly committed to both the F-35B Short Take-Off and Vertical Landing (STOVL) variant and the F-35C Carrier Variant (CV) of the Joint Strike Fighter (JSF) program, as they are essential to our Navy and Marine Corps aviation strategy and the Nation's security. F-35 will supplant much of the DoN's aging TACAIR fleet by replacing Navy and Marine Corps F/A-18A-D Hornets and the Marine Corps AV-8B Harrier. The incorporation of F-35B and F-35C aircraft into our naval force will provide the dominant, multi-role, fifth-generation capabilities that are essential across the full spectrum of combat operations to deter potential adversaries and enable future naval aviation power projection. F-35B is scheduled to achieve Initial Operational Capability (IOC) between July 2015 and December 2015 while the F-35C is scheduled to achieve IOC between August 2018 and February 2019.

The Marine Corps will leverage the F-35B/C capabilities to ensure our TACAIR is able to provide fifth-generation capabilities in support of our ground warriors and strike missions. The concept is one aircraft capable of multiple missions, providing the Marine Air Ground Task Force (MAGTF) with flexible expeditionary basing options, either afloat or ashore, and superior technology to dominate the fight. Our requirement for expeditionary tactical aircraft has been demonstrated repeatedly since the inception of Marine aviation over one hundred years ago. Given the threats we will face in the future, the F-35B is clearly the aircraft of choice to meet our expeditionary operating requirements at sea and ashore. Similarly, in the Carrier Strike Group (CSG), the F-35C, F/A-18E/F, and EA-18G, operating together, provide survivable, long-range strike capability and persistence in an anti-access/area-denied environment. F-35C will provide the CSG Commanders greater tactical agility and strategic flexibility to counter a broad spectrum of threats and win in operational scenarios that cannot be addressed by currently fielded aircraft.

DoD established the F-35 program with a planned measure of concurrent development and production that balanced cost, risk, and need for TACAIR modernization. Concurrency, however, is a transient issue in which risks progressively decline through the end of SDD. The F-35 program has worked with the prime contractor (Lockheed-Martin) to implement a concurrency management structure and refine the estimate of

concurrency costs based on discrete test and qualification events. As more testing is completed, concurrency risks are progressively reduced as the design is confirmed or issues identified requiring changes are incorporated. Earlier aircraft are open to a greater need for changes, and as succeeding Low-Rate Initial Production (LRIP) lots are built, their cumulative requirements for retrofit modifications decline. Furthermore, beginning with LRIP 5, Lockheed-Martin is contractually obligated to share in the costs associated with concurrency. LRIP 6/7 will further reduce the government's exposure to overruns as Lockheed-Martin is required to pay for all cost overruns via firm fixed-price contracts.

F-35 sustainment costs remain a concern. The DoN, working in concert with the Joint Program Office (JPO), is analyzing options, both inside and outside of the JPOs span of control to reduce operating cost. These include, reviewing basing options and sequencing, unit level manpower/ squadron size, and discrete sustainment requirements. Through these combined efforts, the Department believes we will converge on an affordable F-35 sustainment strategy that meets both the required level of Service/Partner performance and lowers the total life-cycle cost of the program.

The Fiscal Year 2015 President's Budget requests $1.0 billion in Research, Development, Test & Evaluation (RDT&E,N) to continue the F-35 SDD program and $2.4 billion in Aircraft Procurement, Navy (APN) for eight F-35 aircraft (six F-35B and two F-35C) with associated aircraft hardware, modification requirements, and spares. The request includes funding for Block 4 systems engineering and planning to achieve follow-on capabilities for emerging and evolving threats and additional weapons integration. Additionally, the Marine Corps is pursuing the procurement of additional F-35s to replace the 6 AV-8B Harriers that were lost due to enemy action in Afghanistan on 14 September 2012.

The DoN is aware of the challenges that remain on the F-35 program, but we believe the program continues to demonstrate increased stability, accountability, and fiscal discipline. The F-35 is essential to the future of Navy/Marine Corps Aviation and the Department is fully committed to the F-35B and F-35C variants of this program. The DoN continues to closely monitor all F-35 program aspects (development, production, and sustainment) to ensure that this capability is obtained at the lowest cost and at the earliest date possible, to meet our national security obligations.

F/A-18 Overview

The F/A-18 Hornet continues to meet readiness and operational commitments. There are 26 Navy Super Hornet squadrons with 513 F/A-18E/Fs; deliveries and squadron transitions will continue through 2016. There are 11 Navy and 11 Marine Corps F/A-18 A-D active component squadrons with 618 Hornets. Super Hornets and F/A-18A-D Hornets have conducted more than 200,000 combat missions since September 11, 2001.

F/A-18 A/B/C/D Hornet

The Fiscal Year 2015 President's Budget requests $250.3 million in APN to implement aircraft commonality programs to maintain relevant capability and improve reliability and ensure structural safety of the inventory of 618 F/A-18 Hornets of which $55.7 million is for the Service Life Extension Program (SLEP).

The F/A-18A-D was designed for, and has achieved, a service life of 6,000 flight hours. These aircraft have performed as expected through their design life and now service life management of this aircraft is intended to extend this platform well beyond its designed 6,000 flight hours. Through detailed analysis, inspections, and, as required, structural repairs, the DoN has been successful in achieving 8,000 flight hours per aircraft and is pursuing a strategy to go as high as 10,000 flight hours on select aircraft. Continued investment in SLEP, the High Flight Hour (HFH) program, Program Related Engineering (PRE), and Program Related Logistics (PRL) is critical for our flight hour extension strategy and to sustain the combat relevancy of these aircraft.

In order to maintain warfighting relevancy in a changing threat environment, we will continue to procure and install advanced systems such as Joint Helmet-Mounted Cueing Systems (JHMCS), High Order Language (HOL) Mission Computers, ALR-67v3, ALQ-214v5, Multi-Function Information Distribution System (MIDS), APG-73 radar enhancements, Advanced Targeting FLIR (ATFLIR) upgrades, and LITENING for the Marine Corps on selected F/A-18A-D aircraft.

F/A-18 E/F Super-Hornet

The Fiscal Year 2015 President's Budget requests $342.7 million in APN to implement aircraft commonality programs, maintain relevant capabilities, improve reliability, and ensure structural safety of the Super-Hornet fleet; and $13.8 million RDT&E,N to support the F/A-18E/F Service Life Assessment Program (SLAP).

The F/A-18E/F significantly improves the survivability and strike capability of the carrier air wing. The Super-Hornet provides increased combat radius and endurance, and a twenty-five percent increase in weapons payload over F/A-18A-D Hornets. The production program continues to deliver on-cost and on-schedule.

The Super-Hornet uses an incremental approach to incorporate new technologies and capabilities, to include: Digital Communication System (DCS) Radio, Multi-Functional Information Distributed System (MIDS) - Joint Tactical Radio System (JTRS), Joint Helmet Mounted Cueing System (JHMCS), ATFLIR with shared real-time video, Accurate Navigation (ANAV), Digital Memory Device (DMD), Distributing Targeting System (DTS), Infrared Search and Track (IRST) and continued advancement of the APG-79 AESA Radar.

The $13.8 million RDT&E,N request supports the F/A-18E/F SLAP requirement. Currently, the F/A-18 E/F fleet, on average, has flown approximately 36 percent of the design life of 6,000 total flight hours. The remaining design service-life will not be adequate to meet future operational commitments through 2035. In 2008, the Navy commenced a three phased F/A-18E/F SLAP to analyze actual usage versus structural test data and determine the feasibility of extending F/A-18E/F service life from 6,000 to 9,000 flight hours via a follow-on SLEP. The F/A-18E/F SLAP will identify the necessary inspections and modifications required to achieve 9,000 flight hours and increase total arrested landings and catapults beyond currently defined life limits. This extension is currently assessed as low risk. The Service Life Management Plan (SLMP) philosophy has been applied to the F/A-18E/F fleet at an earlier point in its lifecycle than the F/A-18A-D. This will facilitate optimization of Fatigue Life Expended, flight hours, and total landings, thereby better aligning aircraft service life with fleet requirements.

AV-8B Harrier

The Fiscal Year 2015 President's Budget requests $65.5 million in APN funds to continue the incorporation of Obsolescence Replacement/Readiness Management Plan systems; electrical and structural changes; upgrades to air-to-air weapon system employment and integration components; inventory sustainment and upgrade efforts to offset obsolescence and attrition; LITENING Pod upgrades; and F402-RR-408 engine safety and operational changes.

The Fiscal Year 2015 President's Budget requests $25.4 million in RDT&E,N funds to continue Design, Development, Integration and Test of various platform improvements, to include: Engine Life Management Program (ELMP), Escape Systems, Joint Mission Planning System (JMPS), and Block upgrades to various mission and communication systems, navigation equipment, weapons carriage, countermeasures, and the Obsolescence Replacement (OR)/Readiness Management Plan (RMP).

The AV-8B continues to be deployed in support of operational contingencies. Each MEU deploys with embarked AV-8Bs. The AV-8B, equipped with LITENING targeting pods and a video downlink to ROVER ground stations, precision strike weapons, and beyond visual range air-to-air radar missiles, has continued to be a proven, invaluable asset for the MAGTF and joint commander across the spectrum of operations. During the first half of Fiscal Year 2015 the AV-8B will receive the H6.1 Operational Flight Program enabling full integration of the Generation 4 LITENING targeting pod that includes correction of software deficiencies to smart weapon employment and targeting. During 2015, the program will also continue work on the H6.2 Operational Flight Program to integrate Federal Aviation Administration (FAA) compliant RNP/RNAV capability and correct additional software deficiencies identified through combat operations. As an out-of-production aircraft, the AV-8B program will continue its focus on sustainment efforts to mitigate significant legacy inventory shortfalls, maintain

airframe integrity, achieve full FLE, and address reliability and obsolescence issues of avionics and subsystems. The Airborne Variable message Formal (VMF) terminals will be installed in AV-8B to replace the current digital-aided close air support (CAS) technology. Additional efforts include tactical datalink and sensor improvements in support of operational contingencies until transition to the F-35.

Operation ODYSSEY DAWN and ENDURING FREEDOM, as well as current operations in the Horn of Africa, confirm the expeditionary advantages of STOVL capabilities by placing the Harrier as the closest multi-role fixed-wing asset to the battlefield. Such dynamic support greatly reduces transit times to the battlefield and enables persistent CAS aircraft without strategic tanking assets. Airframe sustainment initiatives, capability upgrades, and obsolescence mitigation is essential and must be funded to ensure the AV-8B remains lethal and relevant.

TACAIR Inventory Management

The Strike Fighter Shortfall (SFS) associated with the Fiscal Year 2015 President's Budget is manageable. The shortfall is currently predicted to peak at approximately 35 aircraft in Fiscal Year 2023; 20 of which are USMC aircraft and 15 USN aircraft.

The Navy and Marine Corps continue to carefully monitor strike fighter inventory requirements and projected availability. The Department's Inventory Forecasting Tool (IFT) projects the combined effects of deliveries, force structure, aircraft usage rates, structural life limits, depot turnaround time, Fatigue Life Expenditure (FLE), arrested and field landings, and catapult launches on the total strike fighter aircraft inventory. The IFT will be replaced by the Naval Synchronization Tool (NST) no later than the end of Fiscal Year 2014. This transition will enable increased fidelity of aircraft inventory projections and management.

In addition, through lean-six sigma black belt analysis of the entire DoN F/A-18A-D inventory, the USMC has created a TACAIR 2030 Roadmap that drives the IFT predicted 20 aircraft shortfall to zero, while saving (cost avoidance) of $1.14B. As F-35B enters service, it will initially replace the AV-8B, followed by the USMC F/A-18A-Ds. The last active USMC F/A-18 squadron is scheduled to transition in 2029 and the current USMC F/A-18 reserve squadron will not receive its F-35Bs until Fiscal Year 2030. The USMC also plans to source AV-8B's as Strike fighters in lieu of sourcing for F/A-18's in contingency operations.

Current IFT and USMC TACAIR 2030 roadmap assumptions: The DoN will maintain its current tactical fixed-wing force structure; utilization rates will not increase; the delivery rate of F-35B/C remains as planned in the Fiscal year 2015 FYDP; and FA-18 A-D High Flight Hour (HFH) inspections/repair, and SLEP efforts on candidate aircraft allows Fleet Readiness Center (depot) inducted aircraft to reach an extended authorized life of 9,000

hours, with a subset of those aircraft attaining 10,000 flight hours (a by bureau number squadron mapping is contained in the TACAIR 2030 Roadmap).

Airborne Electronic Attack (AEA) / EA-6B Prowler

The Fiscal Year 2015 President's Budget request includes $15.8 million in RDT&E,N for Electronic Warfare (EW) Counter Response; $7.8 million RDT&E,N for MAGTF EW; $34.8 million in APN for Airborne Electronic Attack (AEA) systems; $11.0 million in APN for all EA-6B series aircraft; and $14.8 million APN for MAGTF EW.

Currently, there are 42 EA-6Bs in the Navy and Marine Corps. Of these aircraft, 37 are distributed to six active squadrons, one reserve squadron, two test squadrons, and one Fleet Replacement Squadron, and five aircraft are in depot repair. The total includes 10 Navy and Marine Corps Improved Capability (ICAP) II aircraft and 32 ICAP III aircraft. Following the final Navy EA-6B transition to EA-18G in 2015, all remaining ICAP III EA-6Bs will transfer to and be operated by the Marine Corps, or be in pipeline for final disposition. Final retirement of the EA-6B from the Department's inventory will be in 2019.

Marine aviation is on a path towards a distributed AEA system of systems that is a critical element in achieving the MAGTF EW vision: A composite of manned and unmanned surface, air, and space assets on a fully collaborative network providing the MAGTF commander control of the electromagnetic spectrum when and where desired. Included in this plan are the ALQ-231 Intrepid Tiger II communications jammer, UAS EW payloads, a Software Reprogrammable Payload and an EW Services Architecture to facilitate collaborative networked Electronic Warfare Battle Management.

Intrepid Tiger II development and procurement is in response to Marine Corps requirements for increased precision EW capability and capacity across the MAGTF and provides EW capability directly to tactical commanders without reliance upon the limited availability of the low density/high demand EA-6B Prowler. The Intrepid Tiger II is currently carried on the AV-8B, has successfully completed six deployments in U.S. Central Command's (CENTCOM) Area of responsibility (AOR), and is currently deployed with both the 13th and 22nd Marine Expeditionary Units (MEUs). Integration on Marine Corps F/A-18 aircraft is scheduled to be completed in the second quarter of Fiscal Year 2014 and on Marine Corps rotary-wing aircraft by the second quarter of Fiscal Year 2015 .

Airborne Electronic Attack (AEA) / EA-18G Growler

The Fiscal Year 2015 President's Budget request is $43.5 million in APN for procurement of Avionics Peculiar Ground Support Equipment for the EA-18G aircraft; $18.7 million in RDT&E,N for integration of Jamming Techniques Optimization

improvements and evolutionary software development; and $246.9 million RDT&E,N for Next Generation Jammer (NGJ).

In 2009, the Navy began transition from EA-6Bs to EA-18Gs. The first EA-18G squadron deployed in an expeditionary role in November 2010 to Iraq, and subsequently redeployed on short notice to Italy in March 2011, in support of Operation NEW DAWN (OND) and Operation UNIFIED PROTECTOR (OUP). The EA-18G is a critical enabler in the Joint force, bringing to the fight fully netted warfare capabilities that will provide electromagnetic spectrum dominance in an electromagnetic maneuver warfare (EMMW) environment.

The first carrier-based EA-18G squadron deployed in May 2011. Three active component Navy expeditionary squadrons, seven of ten carrier based squadrons, and one reserve squadron are in, or have completed, transition to the EA-18G. The 10 carrier based EA-18G squadrons will fulfill USN requirements for airborne electronic attack; six expeditionary EA-18G squadrons will fill the joint, high-intensity AEA capability required by the Joint Forces Commander previously fulfilled by the USN and USMC EA-6B. The Navy will be divested of EA-6Bs by 2015; the Marine Corps by 2019. The inventory objective is for 138 EA-18G aircraft. Since the initial deployment, Growlers have flown more than 2,300 combat missions, have expended on average a service-life of approximately six percent of the 7,500 total flight hours per aircraft, and are meeting all operational commitments.

The Next Generation Jammer (NGJ) is new electronic warfare technology that is the replacement for the 41-year old ALQ-99, currently the only Navy and Joint airborne Tactical Jamming System (TJS) pod. The ALQ-99 has limited capability to counter tactically and technically advanced threats, is increasingly difficult and costly to maintain, and has a vanishing industrial supplier base. Navy/DoD requires NGJ to meet current and emerging Electronic Warfare threats. NGJ will have the necessary power and digital techniques to counter increasingly advanced and sophisticated adversary electronic warfare search, surveillance, and targeting-radars and communications systems. NGJ will be DoD's only comprehensive tactical Airborne Electronic Attack (AEA) capability, supporting all Services and joint/coalition partners, and will be implemented in three increments: Mid-Band (Increment 1), Low-Band (Increment 2), and High-Band (Increment 3). NGJ is designed to provide improved capability in support of joint and coalition air, land, and sea tactical strike missions and is critical to the Navy's vision for the future of strike warfare. Fiscal Year 2015 funding is vital to maintain schedule, allowing the program to transition into the Technology Maturation and Risk Reduction (TMRR) development phase and ensure timely start of the critical EA-18G long lead integration activities. Planned Fiscal Year 2015 TMMR activities include: completion of the system functional review, development and release of the Request for Proposal (RFP) for the Engineering and Manufacturing Development (E&MD) phase, maturation of software specification requirements, and conduct of the Technology

Readiness Assessment (TRA) demonstrations. Fiscal Year 2015 constitutes the bulk of a 25-month effort to achieve Technology Readiness Level (TRL) 6 in support of planned Milestone B in Fiscal Year 2016.

E-2D Advanced Hawkeye (AHE)

The Fiscal Year 2015 President's Budget requests $193.2 million in RDT&E,N for continuation of added capabilities to include: In-Flight Refueling, Tactical Targeting Network Technology, Secret Internet Protocol Router Chat, and the Advanced Mid-Term Interoperability Improvement Program; $1,046 million in APN for four Full Rate Production (FRP) Lot 3 aircraft (the second year of a 25 aircraft Multi-Year Procurement (MYP) contract covering Fiscal Years 2014-2018), Advance Procurement (AP) for Fiscal Year 2016 FRP Lot 4 aircraft; and Economic Ordering Quantity (EOQ) funding for the MYP for Fiscal Years 2017 and 2018.

The E-2D AHE is the Navy's carrier-based Airborne Early Warning and Battle Management Command and Control system. The E-2D AHE provides Theater Air and Missile Defense and is capable of synthesizing information from multiple onboard and off-board sensors, making complex tactical decisions and then disseminating actionable information to Joint Forces in a distributed, open-architecture environment.

Utilizing the newly developed AN/APY-9 Mechanical/Electronic Scan Array radar and the Cooperative Engagement Capability system, the E-2D AHE works in concert with tactical aircraft and surface-combatants equipped with the Aegis combat system to detect, track and defeat air and cruise missile threats at extended range and provide Strike Group Commanders the necessary required reaction time.

The first Fleet E-2D squadron (VAW-125) has transitioned and was designated "safe for flight" in January 2014. Initial Operational Capability (IOC) is on track for the first quarter of Fiscal Year 2015.

ASSAULT SUPPORT AIRCRAFT

MV-22

The Fiscal Year 2015 President's Budget requests $ 61.2 million in RDT&E,N for continued product improvements and $1.53 billion in APN for procurement and delivery of 19 MV-22s (Lot 19). Fiscal Year 2015 will be the third year of the follow-on V-22 MYP contract covering Fiscal Years 2013-2017. The funds requested in the Fiscal Year 2015 President's Budget request fully fund Lot 19 and procures long-lead items for Fiscal Year 2016 Lot 20 MV-22 aircraft. The Marine Corps continues to field and transition aircraft on time. The APN request includes $135.6 million to support the ongoing

Operations and Safety Improvement Programs (OSIP), including Correction of Deficiencies and Readiness.
MV-22 Osprey vertical flight capabilities coupled with the speed, range, endurance of fixed-wing transports, are enabling effective execution of current missions that were previously unachievable on legacy platforms. This capability is at the core of the Marine Corps' recently fielded SPMAGTF-CR. As the MV-22 approaches the 200,000 flight hour milestone, it is on pace to be one of the safest of any DoD aircraft dating back to the 1960s.

The follow-on MYP, which began in Fiscal Year 2013, will procure at least 93 MV-22s over five years and includes significant savings of approximately $1 billion when compared to single year procurements. The stability of the MYP supports the Marine Corps' need to retire old aircraft and field new and improved capabilities. This stability also benefits the supplier base and facilitates cost reductions on the part of both the prime contractor and sub-tier suppliers.

Through introduction of the Osprey tilt-rotor capability into combat, the service has gained valuable insight with respect to readiness and operating costs. Since 2010, MV-22 mission capability rates have increased fourteen percent. During the same period, cost per flight hour rates decreased fourteen percent. To keep these improvements on track, a readiness OSIP was introduced in Fiscal year 2012. Fiscal Year 2015 OSIP provides a necessary and stable source of crucial modification funding as the Ospreys continue to improve readiness and reduce operating cost.

CH-53K Heavy Lift Replacement Program

The Fiscal Year 2015 President's Budget requests $573.2 million RDT&E,N to continue Engineering and Manufacturing Development (EMD) of the CH-53K. Since completing its Critical Design Review in July 2010, the CH-53K program commenced system capability and manufacturing process demonstration, has nearly completed assembly of the first five test aircraft; one Ground Test Vehicle (GTV) and four Engineering Development Model (EDM) aircraft. In December 2013, the program entered Developmental Test. The GTV has successfully completed numerous ground test requirements, to include the "Bare Head Light-Off." The program is currently on schedule to execute its first flight by the end of 2014. During Fiscal Year 2015, the program will continue to execute developmental test flights, deliver the final EDM, and start production of System Demonstration Test Article (SDTA) aircraft which will be production representative aircraft utilized for Operational Test.

The new-build CH-53K will fulfill land and sea based heavy-lift requirements not resident in any of today's platforms, and contribute directly to the increased agility, lethality, and presence of joint task forces and MAGTFs. The CH-53K will transport 27,000 pounds of external cargo out to a range of 110 nautical miles, nearly tripling the

CH-53E's lift capability under similar environmental conditions, while fitting into the same shipboard footprint. The CH-53K will also provide unparalleled lift capability under high-altitude and hot weather conditions, greatly expanding the commander's operational reach.

Maintainability and reliability enhancements of the CH-53K will improve aircraft availability and operational effectiveness over the current CH-53E with improved cost effectiveness. Additionally, survivability and force protection enhancements will dramatically increase protection for both aircrew and passengers, thereby broadening the depth and breadth of heavy lift operational support to the joint task force and MAGTF commander. Expeditionary heavy-lift capabilities will continue to be critical to successful land and sea-based operations in future anti-access, area-denial environments, enabling sea-basing and the joint operating concepts of force application and focused logistics.

The H-53E aircraft currently in service continue to meet unprecedented operational demand but are approaching 30 years of service and becoming ever more challenging to maintain. To keep the "Echo" viable until the "Kilo" enters service, the Fiscal Year 2015 President's Budget requests $38.2 million in APN for both near and mid-term enhancements. These modifications include Condition Based Maintenance software upgrades, T-64 Engine Reliability Improvement Program kit installations, Critical Survivability Upgrade (CSU) installations, Smart Multi-Function Color Display (SMFCD) and sustainment efforts such as Kapton wiring replacement and improved Engine Nacelles. With the exception of the CSU and SMFCD, the same modifications are also made to the USN MH-53E helicopters.

ATTACK AND UTILITY AIRCRAFT

UH-1Y // AH-1Z

The Fiscal Year 2015 President's Budget requests $44.1 million in RDT&E,N for continued product improvements and $859.7 million in APN for 26 H-1 Upgrade aircraft: 15 UH-1Y and 11 AH-1Z. The program is a key modernization effort designed to resolve existing safety deficiencies and enhance operational effectiveness of the H-1 fleet. The 85 percent commonality between the UH-1Y and AH-1Z will significantly reduce life-cycle costs and the logistical footprint, while increasing the maintainability and deployability of both aircraft. The program will provide the Marine Corps with 349 H-1 aircraft through a combination of new production and a limited quantity of remanufactured aircraft.

The H-1 Upgrades Program is replacing the Marine Corps' UH-1N and AH-1W helicopters with state-of-the-art UH-1Y "Yankee" and AH-1Z "Zulu" aircraft. The new aircraft are fielded with integrated glass cockpits, world-class sensors, and advanced

helmet-mounted sight and display systems. The future growth plan includes a digitally-aided, close air support system designed to integrate these airframes, sensors, and weapons systems together with ground combat forces and other capable DoD aircraft. Integration of low-cost weapons such as the Advanced Precision Kill Weapon System II (APKWS II) has increased lethality while reducing collateral damage.
The UH-1Y aircraft achieved IOC in August 2008 and FRP in September 2008. The "Yankee Forward" procurement strategy prioritized UH-1Y production in order to replace the under-powered UH-1N fleet as quickly as possible. The AH-1Z completed its operational evaluation (OT-II3C) in June 2010, and received approval for FRP in November 2010. The AH-1Z achieved IOC in February 2011. As of February 19, 2013, 126 aircraft (89 UH-1Ys and 37 AH-1Zs) have been delivered to the Fleet Marine Force; an additional 58 aircraft are on contract and in production. The last 2 aircraft from Lot 7 will deliver in March/April 2014. Lot 8 deliveries are progressing on or ahead of schedule.

In December 2011, to address existing attack helicopter shortfalls, the Marine Corps decided to pursue an all AH-1Z Build New (ZBN) procurement strategy and leave AH-1W airframes in the inventory rather than removing them from service to begin the remanufacture process. The transition to an all ZBN airframe strategy began with Lot 10 (Fiscal Year 2013) as reflected in the current USMC program of record. The aircraft mix is 37 remanufactured AH-1Z and 152 ZBN aircraft. The total aircraft procurement numbers remain the same at 160 UH-1Ys and 189 AH-1Zs for a total of 349 aircraft.

MH-60 (Overview)

MH-60 Seahawks have consistently met readiness and operational commitments. There will be 38 Navy Seahawk squadrons with 275 MH-60S's and 251 MH-60R's when transitions from the SH-60B, SH-60F, and HH-60H are complete. Production and squadron transitions will continue through 2017. Over the last twelve years of combat operations, deployed ashore and aboard our aircraft carriers, amphibious ships, and escort warships at sea, DoN helicopters have provided vital over-watch and direct support to our troops in combat, on the ground, and in multiple theaters of operation and in a variety of missions including support to special operations forces, air ambulance, surface warfare, anti-submarine warfare, mine warfare, logistics support and humanitarian assistance/disaster relief.

MH-60R Seahawk

The Fiscal Year 2015 President's Budget requests $1.04 billion in APN for 29 helicopters. The production program continues to deliver on-cost and on-schedule.

The MH-60R Multi-Mission Helicopter provides strike group protection and adds significant capability in coastal littorals and regional conflicts. The MH-60R represents a

significant avionics improvement to H-60 series helicopters by enhancing primary mission areas of Undersea Warfare and Surface Warfare which includes the Fast Attack Craft/Fast In-shore Attack Craft (FAC/FIAC) threat response capabilities. The MH-60R is the sole organic air ASW asset in the CSG and critical to its defense. Additionally, it serves as a key contributor to theater level ASW. The MH-60R also employs advanced sensors and communications to provide real-time battlespace management with a significant, passive, over-the-horizon targeting capability. Secondary mission areas include Search and Rescue, Vertical Replenishment, Naval Surface Fire Support, Logistics Support, Personnel Transport and Medical Evacuation.
The $11.5 million RDT&E,N request supports the MH-60R Test Program consisting of numerous system upgrades and Pre-Planned Product Improvements, to include the Digital Rocket Launcher (DRL) with Advanced Precision Kill Weapon System (APKWS II) and the Helicopter Infra-Red Suppression System (HIRSS).

MH-60S Seahawk

The Fiscal Year 2015 President's Budget requests $210 million in APN for eight helicopters to complete the production program of 275 total helicopters. The production program continues to deliver on-cost and on-schedule.
The MH-60S Multi-Mission Helicopter provides strike group protection and adds significant capability in coastal littorals and regional conflicts. The MH-60S represents a significant avionics improvement to H-60 series helicopters by enhancing primary mission areas of Mine Warfare and Surface Warfare which includes the FAC/FIAC threat response capabilities. Secondary mission areas include Combat Search and Rescue, Support to Special Operations Forces, Vertical Replenishment, Logistics Support, Personnel Transport and Medical Evacuation.

The $25.9 million RDT&E,N request supports the MH-60S Test Program consisting of numerous system upgrades and Pre-Planned Product Improvements including: Airborne Mine Countermeasures (AMCM); and Armed Helicopter FAC/FIAC Defense.

Armed Helo Block 3A OT was completed in June 2007 and Block 3B (added Link 16 capability) OT was completed in November 2009. Test and Evaluation (T&E) of fixed forward firing weapon (FFW) (20mm gun system) was completed in Fiscal Year 2012. T&E of initial FFW Unguided Rocket (UGR) capability was completed in Fiscal Year 2013. T&E for FFW Digital Rocket Launcher (DRL) with Advanced Precision Kill Weapon System and expanded UGR capability for the FAC/FIAC threat is in work and planned to complete in Fiscal Year 2015. Planned AMCM Initial Operational test and Evaluation (IOT&E) and Follow-On Operational test and Evaluation (FOT&E) periods were changed to Operational Assessments with the final IOT&E aligned with LCS MCM Mission Package IOT&E.

EXECUTIVE SUPPORT AIRCRAFT

VH-3D/VH-60N Executive Helicopter Series

The VH-3D and VH-60N are safely performing the Executive Lift mission worldwide. As these aircraft continue to provide seamless vertical lift for the President and Vice President of the United States, the DoN is working closely with HMX-1 and industry to sustain these aircraft until a Presidential Replacement platform is fielded. The Fiscal Year 2015 President's Budget requests an investment of $71.3 million of APN to continue programs that will ensure the in-service Presidential fleet remains a safe and reliable platform. Ongoing VH-60N efforts include the Cockpit Upgrade Program (CUP), engine upgrade program, and a Communications Suite Upgrade (Wide Band Line of Sight). The continuing Structural Enhancement Program and the Obsolescence Management Program applies to both VH-60N and VH-3D. The VH-3D Cockpit Upgrade Program, a Fiscal Year 2012 new start program, addresses a number of obsolescence issues. Continued investments in the in-service fleet will ensure continued safe and reliable execution of the Executive Lift mission. These technology updates for legacy platforms will be directly leveraged for the benefit of the ensuing replacement program (VXX).

VXX Presidential Helicopter Replacement Aircraft

The Fiscal Year 2015 President's Budget request includes $388.1 million of RDT&E,N for continuing efforts on VXX, and primarily funds the EMD contract and government activities associated with the EMD phase of the program.

Significant progress has been made in the past year and the program requirements and acquisition strategy have now been approved. The acquisition approach is based on integration of mature subsystems into an air vehicle that is currently in production. This strategy will enable the program to proceed directly into the EMD phase. The Milestone B review and subsequent contract award are planned to occur during Fiscal Year 2014. The first of the planned inventory of 21 aircraft could begin fielding as early as 2020.

FIXED-WING AIRCRAFT

KC-130J

The Fiscal Year 2015 President's Budget requests $92.3 million for procurement of one KC-130J included in the second year of the multi-service MYP request, one fuselage trainer, and continued product improvements of $21.6 million. Targeted improvements include aircraft survivability through advanced electronic countermeasure modernization, and obsolescence upgrades to the Harvest HAWK ISR/Weapon Mission Kit.

Fielded throughout our active force, the Marine Corps declared IOC for the KC-130J transition in 2005; bringing increased capability, performance and survivability with lower operating and sustainment costs to the MAGTF. Forward deployed in support of ongoing operations since 2005, the KC-130J continues to deliver Marines, fuel and cargo whenever and wherever needed. In 2014 the KC-130J remains in high demand, providing tactical air-to-air refueling, assault support, close air support and Multi-sensor Imagery Reconnaissance (MIR) in support of OEF, Special Purpose MAGTF Crisis Response, and deployed MEUs.

Deployed in support of OEF since fielding in 2010, the bolt-on/bolt-off Harvest HAWK ISR/Weapon Mission Kit for the KC-130J continues to provide the extended MIR and CAS required by Marine forces in Afghanistan. Five mission kits have been delivered to date, with one more kit on contract to deliver in Fiscal Year 2014. Funding included in the Fiscal Year 2015 Budget request will be used to maintain operational relevance of this mission system through Hellfire P4 compatibility and the addition of a full motion video transmit and receive capability.

The Marine Corps has funded 52 of the 79 KC-130J program of record. The three aircraft included in the Fiscal Year 2013 budget will complete the Active Component (AC) requirement of 51 aircraft. The Marine Corps will use the AC backup aircraft to accelerate the Reserve Component (RC) transition from the KC-130T aircraft to the more capable, more efficient, KC-130J beginning in Fiscal Year 2014. The aircraft requested in the Fiscal Year 2015 President's Budget will continue to increase KC-130J inventory as we strive to achieve Full Operational Capability (FOC) in the RC. Delays in procurement would force the Marine Corps to sustain the KC-130T aircraft longer than planned at an increased cost.

P-8A Poseidon

The Fiscal Year 2015 President's Budget requests $308.0 million in RDT&E,N for integrated development and associated testing and $2.05 billion for procurement of eight FRP P-8A Poseidon aircraft which are scheduled to begin delivery in May 2017. APN funding includes Advanced Procurement for the subsequent FRP procurement lot. The P-8A Poseidon recapitalizes the Maritime Patrol Anti-Submarine Warfare (ASW), Anti-Surface Warfare (ASUW) and armed ISR capability currently resident in the P-3C Orion. The P-8A combines the proven reliability of the commercial 737 airframe with avionics that enables integration of modern sensors and robust communications. P-8A achieved IOC when the first Fleet squadron (VP-16) deployed to the Western Pacific with six aircraft in November 2013. As of February 2014, three Fleet squadrons have completed transition to P-8A. All Fleet squadrons are scheduled to complete transition by the end of Fiscal Year 2019. The P-8A program is meeting all cost, schedule and performance parameters in accordance with the approved Acquisition Program Baseline.

Boeing has delivered 13 aircraft (LRIP I/II) to the Fleet as of February 2014. LRIP III (11 aircraft), LRIP IV (13 aircraft), and FRP 1 (16 aircraft) are under contract, with the contract for FRP 1 (16 aircraft) signed on February 25, 2014. The Fiscal Year 2015 budget proposes to procure eight P-8As. This will sustain the P-3C to P-8A transition in the Fleet but is a reduction of eight aircraft from the Fiscal Year 2014 request. In the Fiscal Year 2015 request, we were compelled by fiscal constraints to lower the final P-8A inventory objective from 117 to 109 aircraft, reducing procurement over the FYDP by eight aircraft. The warfighting requirement remains 117 aircraft; however the revised inventory objective for 109 aircraft will provide adequate capacity at acceptable levels of risk.

As fleet deliveries of the Increment 1 configuration accelerate, integration and testing of P-8A Increment 2 capability upgrades continues. In particular, Phase 1 of P-8A Increment 2 Multi-Static Active Coherent ASW capability began initial flight testing in January 2014 and is on-track for IOT&E and fleet introduction in late 2014. The 2015 request also continues the prototyping and development of the more extensive P-8A Increment 3 upgrades, which expand the P-8A evolutionary acquisition strategy to deliver the next level of required P-8A capability.

P-3C Orion

In Fiscal Year 2015, $2.8 million in APN is requested for P-3C airframe and mission systems sustainment. Funding is for continued wing modifications and mission systems sustainment for P-3C aircraft that will remain in service until the end of the decade. The legacy P-3C fleet continues to provide ASW, ASUW, and ISR support for Joint and Naval operations worldwide. The P-3C is being sustained to maintain warfighting capability and capacity until completion of P-8A transition in Fiscal Year 2019.

The P-3C aircraft is well beyond the original planned fatigue life of 7,500 hours for critical components, with an average airframe usage of over 18,000 hours. Since February 2005, the Navy's Fatigue Life Management Program has identified over 140 P-3 aircraft with fatigue damage beyond acceptable risk, resulting in either temporary or permanent grounding of each. P-3 groundings due to known material fatigue will continue for the remainder of the P-3 program, and unknown fatigue issues will continue to present persistent risk until P-8A transition is complete. To date, $1.3 billion has been invested in P-3 wing sustainment, which has improved the overall structural health of the P-3 fleet. As of February 2014, there are currently 84 P-3C mission aircraft available.

EP-3 Aries Replacement/Sustainment

In Fiscal Year 2015, the President's Budget request is $32.9 million in APN for EP-3 Aries Replacement/Sustainment. The APN request supports the installation and sustainment of multi-intelligence capabilities and modifications necessary to meet emergent classified requirements. These efforts are necessary to keep the platform viable until the EP-3 capabilities are recapitalized.

The EP-3E Aries is the Navy's premier manned Maritime Intelligence, Surveillance, Reconnaissance, and Targeting (MISR&T) platform. The Joint Airborne Signals intelligence (SIGINT) Common Configuration includes SIGINT spiral upgrades. These upgrades, in conjunction with Secretary of Defense and the ISR Task Force (ISR TF) surge efforts, are fielding a robust Multi-Intelligence (INT) capability inside the FYDP. Multi-INT sensors, robust communication, and data links employed by the P-3 air vehicle help ensure effective MISR&T support to conventional and non-conventional warfare across the current Range of Military Operations. Operating around the globe, the EP-3E continues to satisfy critical Joint, Combatant Commander, and Service airborne ISR priorities and requirements.

The Navy is in the process of developing the MISR&T Family of Systems construct to recapitalize the EP-3 MISR&T capabilities within existing Programs of Record. The strategy has been further refined to focus on modular systems and payloads required for the Navy to conduct MISR&T on a variety of vehicles, providing Combatant Commanders with scalable capability and capacity. The inclusive full-spectrum approach will deliver increased ISR persistence by the end of Fiscal Year 2018 and exceed the aggregate capability and capacity of our legacy platforms by the end of Fiscal Year 2020. However, as we transition from legacy platforms like the EP-3E *Aries II*, fiscal constraints will compel us to take moderate risk in some collection capabilities over the next few years.

UNMANNED AIRCRAFT SYSTEMS (UAS)

MQ-4C Triton UAS

The Fiscal Year 2015 President's Budget postpones the MQ-4C Triton (formerly known as BAMS or Broad Area Maritime Surveillance) LRIP from Fiscal Year 2015 to Fiscal Year 2016. The Fiscal Year 2015 President's Budget requests $498 million in RDT&E,N to continue Triton SDD and $37.4 million APN for procurement of long-lead materials for the first lot of LRIP aircraft. Due to software integration delays during initial testing, the program experienced a year-long delay to the start of flight testing. A program replan has been completed and the program remains executable within current funding levels. Triton will start establishing five globally-distributed, persistent maritime ISR orbits beginning in Fiscal Year 2017. MQ-4C Triton test vehicles have completed 12 test

flights as of February 25, 2014 and are on schedule to begin developmental testing with sensors later this year. This rigorous integrated flight test program will support Milestone C planned for Fiscal Year 2016. The MQ-4C Triton is a key component of the Navy Maritime Patrol Reconnaissance Force. Its persistent sensor dwell, combined with networked sensors, will enable it to effectively meet ISR requirements in support of the Navy Maritime Strategy.

The Navy currently maintains an inventory of four U.S. Air Force (USAF) Global Hawk Block 10 UAS acquired for demonstration purposes and to perform risk reduction activities for the Triton UAS Program. These aircraft, the Broad Area Maritime Surveillance Demonstrators, or BAMS-D, have been deployed to CENTCOM's AOR for over five years. BAMS-D recently achieved over 10,000 flight hours in support of CENTCOM ISR tasking. These demonstration assets are adequate to cover all Navy needs through Fiscal Year 2016.

Unmanned Combat Air System Demonstration (UCAS-D)

The Fiscal Year 2015 President's Budget requests $36.0 million in RDT&E, to be combined with an Fiscal Year 2014 $39 million reprogramming, to continue Navy UCAS-D flight testing of this unmanned carrier-suitable air vehicle commonly referred to as X-47B. These resources will advance technological development and risk mitigation for the UCLASS system and continue the autonomous aerial refueling (AAR) demonstration. The X-47B has completed Carrier Qualification detachments consisting of catapult testing, arrested landings and envelope expansion, to include testing in off-nominal conditions and increased sea states. The latest AAR testing period was completed in January 2014 utilizing a manned surrogate aircraft. Carrier demonstration and AAR development and testing activities are planned to continue throughout 2015. The Department is working to reduce risk and align program/CVN operational schedules to best accommodate risk mitigation and meet demonstration objectives.

Unmanned Carrier Launched Airborne Surveillance and Strike (UCLASS) System

The Fiscal Year 2015 President's Budget requests $403.0 million in RDT&E,N for UCLASS system development efforts. The major portion of this funding will enable contract award to industry for air system development to meet Joint Requirements Oversight Council (JROC) direction to expedite fielding of an Early Operational Capability (EOC). The UCLASS system will enhance carrier air wing capability and versatility for the Joint Forces commander through integration of a persistent and mission flexible unmanned aircraft into the Carrier Air Wing by Fiscal Year 2021. The JROC issued a new memorandum in February 2014, reaffirming the need for rapid fielding of an affordable, adaptable carrier-based ISR platform with precision strike capability. The UCLASS system will provide persistent ISR with precision strike capabilities supporting missions ranging from permissive counter-terrorism operations, to missions in contested

environments, to providing enabling capabilities for high-end area denied operations. It will be sustainable onboard an aircraft carrier and designed to be fully integrated with the current carrier air wing. The UCLASS system will have the ability to pass command and control information along with sensor data to other aircraft, naval vessels, and ground forces. Sensor data will be transmitted to exploitation nodes afloat and ashore. Interfaces will be provided with existing ship and land-based command and control systems, as well as processing, exploitation, and dissemination systems. The UCLASS system will achieve these capabilities through development of a carrier-suitable, semi-autonomous, unmanned Air Segment; a Control System and Connectivity Segment; and a Carrier Segment. These segments will be overseen by the Government as the Lead System Integrator, providing government-led system-of-systems integration for the UCLASS Program.

MQ-8 Vertical Takeoff and Landing Unmanned Aerial Vehicle (VTUAV) and Associated Rapid Deployment Capability (RDC) Efforts

The MQ-8 Fire Scout is an autonomous vertical takeoff and landing tactical UAV (VTUAV) designed to operate from any suitably-equipped air-capable ships, carry modular mission payloads, and operate using the Tactical Control System and Line-Of-Sight Tactical Common Data Link. The Fiscal Year 2015 President's Budget requests $47.3 million of RDT&E,N to continue development of an endurance upgrade (MQ-8C), integrate radar and weapons on the MQ-8C, and continue payload and LCS integration with the MQ-8B and MQ-8C. The request for $40.7 million in APN defers procurement of MQ-8C air vehicles to better align with LCS deliveries, while procuring MQ-8 System ground control stations, ancillary, training and support equipment, technical support and logistics to outfit the ships and train the Aviation Detachments. Commonality of avionics, software, and payloads between the MQ-8B and MQ-8C has been maximized. The MQ-8B and MQ-8C air vehicles will utilize the same ship-based ground control station and other ship ancillary equipment.

Fire Scout was deployed to Afghanistan from May 2011 until August 2013, and amassed more than 5,100 dedicated ISR flight hours in support of U.S. and coalition forces. Successful deployments aboard USS KLAKRING, USS SIMPSON, USS BRADLEY, USS SAMUEL B. ROBERTS, USS HAYLYBURTON, and USS ELROD have supported Special Operations Forces (SOF) and Navy operations since 2012. The MQ-8 Fire Scout has flown more than 4,800 hours from frigates, performing hundreds of autonomous ship board take-offs and landings. The Fire Scout program will continue to support integration and testing for LCS-based mission modules.

Tactical Control System (TCS)

The Fiscal Year 2015 President's Budget requested $8.5 million in RDT&E,N for the MQ-8 System's Tactical Control System (TCS). TCS provides a standards compliant,

open architecture, with scalable command and control capabilities for the MQ-8 Fire Scout air system. In Fiscal Year 2015, TCS will continue to transition to the Linux operating system software to a technology refreshed ground control station, enhance the MQ-8 System's Ocean Surveillance Initiative for ships Automatic Identification System and sensor track generation. The Linux operating system conversion overcomes hardware obsolescence issues with the Solaris based control stations and provides lower cost software updates using DoD common application software. In addition, the TCS Linux upgrade will enhance collaboration with the Navy's future UAS Common Control System (CCS).

Small Tactical Unmanned Aircraft System (STUAS) RQ-21A Blackjack

The Fiscal Year 2015 President's Budget requests $12.9 million in RDT&E ($4.8 million USN, $8.1 million USMC) and $70.5 million in Procurement, Marine Corps (PMC) for three RQ-21A systems which include 15 air vehicles that will address Marine Corps ISR capability requirements currently supported by service contracts. This Group 3 UAS will provide persistent ship and land-based ISR support for expeditionary tactical-level maneuver decisions and unit level force defense and force protection missions. Blackjack entered LRIP in 2013 and is currently executing IOT&E.

The RQ-21's current configuration includes full motion video and signals intelligence capability. The Marine Corps is actively pursuing technological developments for the RQ-21 system in an effort to provide the MAGTF and Marine Corps Forces Special Operations Command (MARSOC) with significantly improved capabilities. Initiatives include over-the-horizon communication and data relay ability to integrate the system into future networked digital environments; electronic warfare and cyber payloads to increase non-kinetic capabilities; and change detection radar and moving target indicators to assist warfighters in battlespace awareness and force application.

RQ-7B Shadow Marine Corps Tactical UAS (MCTUAS)

The Fiscal Year 2015 President's Budget requests $0.9 million in RDT&E,N for the RQ-7B Shadow to continue development efforts and government engineering support and $2.5 million in APN to acquire new air vehicle data processors and update engines to improve air vehicle reliability. The more capable RQ-21 Blackjack is scheduled to perform the preponderance of Marine Corps ISR responsibilities as divestment from the RQ-7B Shadow continues.

STRIKE WEAPONS PROGRAMS

Tactical Tomahawk (TACTOM) BLK IV Cruise Missile Program

The Fiscal Year 2015 President's Budget requests $194.3 million in Weapons Procurement, Navy (WPN) for procurement of an additional 100 BLK IV TACTOM weapons and associated support, $ 61.5 million in OPN for the Tomahawk support equipment, and $27.4 million in RDT&E for capability updates of the weapon system. WPN resources will be for the continued procurement of this versatile, combat-proven, deep-strike weapon system in order to meet ship load-outs and combat requirements. OPN resources will address the resolution of TTWCS obsolescence and interoperability mandates. RDT&E will be used to initiate engineering efforts for A2/AD navigation and communication upgrades.

Tomahawk Theater Mission Planning Center (TMPC)

TMPC is the mission planning and command and control segment of the Tomahawk Weapon System. Under the umbrella of TMPC, the Tomahawk Command and Control System (TC2S) develops and distributes strike missions for the Tomahawk Missile; provides for precision strike planning, execution, coordination, control and reporting; and enables Maritime Component Commanders the capability to plan and/or modify conventional Tomahawk Land-Attack Missile missions before and in flight. TC2S optimizes all aspects of the Tomahawk missile technology to successfully engage a target. TC2S is a Mission Assurance Category 1 system vital to operational readiness and mission effectiveness of deployed and contingency forces for content and timeliness. The Fiscal Year 2015 President's Budget requests $13.4 million in RDT&E and $40.3 million OPN for continued TMPC system upgrades and sustainment. These planned upgrades support integration, modernization and interoperability efforts necessary to keep pace with missile, imagery and threat changes, retain/enable capabilities of the Tomahawk missile and includes providing an improved GPS denied navigation system, rewrite/update of Tomahawk Planning System's unsupported legacy software code, and technology refreshes to reduce vulnerability to cyber-attacks. These resources are critical for the support of over 180 TC2S operational sites to include: Cruise Missile Support Activities, Tomahawk Strike and Mission Planning Cells (5th, 6th, 7th Fleet), CSGs, Command and Control Nodes, Surface and Subsurface Firing Units and Labs/Training Classrooms.

Offensive Anti-Surface Warfare (OASuW) Weapon

The Fiscal Year 2015 President's Budget requests $203 million in RDT&E for the continued development and technology transition of the Defense Advanced Research Program Agency (DARPA) Long Range Anti-Ship Missile (LRASM) in support of the air launched OASuW/Increment 1 program. LRASM will provide the Combatant

Commanders the ability to conduct Anti-Surface Warfare (ASuW) operations against high value surface combatants protected by Integrated Air Defense System with long-range Surface-to-Air-Missiles and will deny the adversary the sanctuary of maneuver. OASuW/Increment 1 program is a Department of the Navy led joint program with a schedule to field LRASM on the B-1B by the end of Fiscal Year 2018 and the F/A-18E/F by the end of Fiscal Year 2019. Funding supports Analysis of Alternative (AoA) updates to assess fully capable OASuW/Increment 2 material solution(s) geared to the advanced 2024 threat. Surface and air-launched material solutions will be assessed and study results will inform investment options in Fiscal Year 2016 and beyond.

Sidewinder Air-Intercept Missile (AIM-9X)

The Fiscal Year 2015 President's Budget requests $47.3 million in RDT&E,N and $73.9 million in WPN for this joint DoN and USAF program. RDT&E,N will be applied toward AIM-9X Block II developmental/operational tests and requirements definition for Joint Staff directed Insensitive Munitions requirements, redesign critical components facing obsolescence, and continue AIM-9X/Block III development activities. WPN will be for production of a combined 167 All-Up-Rounds and Captive Air Training Missiles and missile-related hardware. The AIM-9X Block II Sidewinder missile is the newest in the Sidewinder family and is the only short-range infrared air-to-air missile integrated on USN/USMC/USAF strike-fighter aircraft. This fifth-generation weapon incorporates high off-boresight acquisition capability and increased seeker sensitivity through an imaging infrared focal plane array seeker with advanced guidance processing for improved target acquisition; a data link; and advanced thrust vectoring capability to achieve superior maneuverability and increase the probability of intercept of adversary aircraft.

Advanced Medium-Range Air-to-Air Missile (AMRAAM/AIM-120)

The Fiscal Year 2015 President's Budget requests $10.2 million in RDT&E for continued software capability enhancements and $32.2 million in WPN for missile-related hardware. AMRAAM is a joint USAF and DoN missile that counters existing aircraft and cruise-missile threats. It uses advanced electronic attack capabilities at both high and low altitudes, and can engage from beyond visual range as well as within visual range. AMRAAM provides an air-to-air first look, first shot, first kill capability, while working within a networked environment in support of the Navy's Theater Air and Missile Defense Mission Area. Prior missile production delays caused by rocket-motor anomalies were corrected when the Nordic Ammunition Group (NAMMO) was brought on-line as an alternate source to Alliant Technologies (ATK). We now anticipate AIM-120D production will recover for both the USAF and the DoN in 2014.

Small Diameter Bomb II (SDB II)

The Fiscal Year 2015 President's Budget requests $71.8 million in RDT&E for the continued development of this joint Department of the Navy and Department of the Air Force (lead) weapon and bomb-rack program. SDB II provides an adverse weather, day or night standoff capability against mobile, moving, and fixed targets, and enables target prosecution while minimizing collateral damage. SDB II will be integrated into the internal carriage of both Department of the Navy variants of the Joint Strike Fighter (F-35B and F-35C) as well as onto the Navy Super Hornet (F/A-18E/F). The Joint Miniature Munitions Bomb Rack Unit (JMM BRU) BRU-61A/A is being developed to meet the operational and environmental integration requirements for internal bay carriage of the SDB II in the F-35B and F-35C. JMM BRU entered Technology Development in June 2013.

Joint Standoff Weapon (JSOW)

The Fiscal Year 2015 President's Budget requests $4.4 million in RDT&E,N to complete JSOW C-1 operational testing activity and $130.8 million in WPN for production of 200 All-Up Rounds. The JSOW C-1 variant fills a critical gap by adding maritime moving-target capability to the highly successful baseline JSOW C program. JSOW C-1 targeting is achieved via a two-way data-link and guidance software improvements. JSOW C-1 is planned to achieve Initial Operational Capability in Fiscal Year 2015 after the completion of F/A-18E/F H10E Software Configuration Set operational testing.

Advanced Anti-Radiation Guided Missile (AARGM)

The Fiscal Year 2015 President's Budget requests $16.1 million of RDT&E,N for Block 1 follow-on development and test program and $111.7 million of WPN for production of 108 All-Up-Rounds and Captive Training Missiles. The AARGM cooperative program with Italy transforms the High-Speed Anti-Radiation Missile (HARM) into an affordable, lethal, and flexible time-sensitive strike weapon system for conducting Destruction of Enemy Air Defense (DEAD) missions. AARGM adds multi-spectral targeting capability and targeting geospecificity to its supersonic fly-out to destroy sophisticated enemy air defenses and expand upon the HARM target set. Initial Operational Capability on the F/A-18C/D aircraft was reached in July 2012 and forward deployed to U.S. Pacific Command (PACOM). With release of H-8 SCS, AARGM is integrated on F/A-18E/F and EA-18G aircraft.

Advanced Precision Kill Weapon System II (APKWS II)

The Fiscal Year 2015 President's Budget requests $45.9 million in PANMC, for procurement of 1,555 APKWS II Precision Guidance Kits. APKWS II provides an unprecedented precision guidance capability to DoN unguided rocket inventories

improving accuracy and minimizing collateral damage. Program production is on schedule to meet the needs of our warfighters in today's theaters of operations. Initial Operational Capability was reached in March 2012 on the Marine Corps' AH-1Z. The Navy is finalizing an APKWS II integration effort on the MH-60S for an Early Operational Capability by April 2014.

Joint Air-to-Ground Missile (JAGM)

The Fiscal Year 2015 President's Budget requests $6.3 million in RDT&E to begin a 5-year integration effort for JAGM Increment 1 onto the Marine Corps AH-1Z to achieve an Initial Operational Capability by Fiscal Year 2021. JAGM is a Joint Department of the Army and Department of the Navy pre-Major Defense Acquisition Program with the Army designated as the lead service. JAGM is a direct attack/close-air-support missile program that will utilize advanced seeker technology and be employed against land and maritime stationary and moving targets in adverse weather and will replace the Hellfire and TOW II missile systems. In November 2012, the Joint Chiefs of Staff authorized the JAGM incremental requirements and revalidated the Department of the Navy's AH-1Z Cobra aircraft as a threshold platform. JAGM Increment 1 is expected to achieve Milestone B certification in Fiscal Year 2015.

United States Navy
Biography

Vice Admiral Paul A. Grosklags
Principal Military Deputy
Assistant Secretary of the Navy for Research, Development, and Acquisitions

Vice Adm. Grosklags is a native of DeKalb, Ill. After being designated a naval aviator in October 1983, he immediately reported to Training Squadron Three at North Whiting Field in Milton, Fla., as a T-34C flight instructor.

Grosklags served operational tours with Helicopter Antisubmarine Squadrons 34 and 42, where he flew the SH-2F and SH-60B, respectively. Grosklags made multiple deployments with the USS John Hancock (DD 981), USS Donald B. Beary (FF 1085), USS Comte de Grasse (DD 974), and USS Leyte Gulf (CG 55). He later served as both executive and commanding officer of Helicopter Training Squadron Eighteen 18.

Grosklags' acquisition tours include engineering test pilot and assignments as MH-60R assistant program manager for systems engineering, H-60 assistant program manager for test and evaluation, MH-60R deputy program manager, and ultimately as program manager for Multi-Mission Helicopters (PMA-299), during which time the MH-60R was successfully introduced to the fleet. Grosklags also served as operations officer and subsequently as deputy Program Executive Officer for Air Anti-Submarine Warfare, Assault and Special Mission Programs (PEO(A)).

Grosklags has served flag tours as commander, Fleet Readiness Centers and Naval Air Systems Command (NAVAIR) assistant commander for Logistics and Industrial Operation, NAVAIR vice commander, and PEO(A). In July 2013, he assumed responsibilities as principal military deputy for the Assistant Secretary of the Navy (Research, Development & Acquisition).

Grosklags graduated from the U.S. Naval Academy in 1982, is a graduate of the U.S. Naval Test Pilot School Class 99, and holds a Master of Science degree in Aeronautical Engineering from the Naval Postgraduate School. He has more than 5,000 military flight hours in numerous types of rotary and fixed-wing aircraft. Grosklags is a proud but humble co-owner of the Green Bay Packers and works weekends providing free labor on his wife's fish farm.

Updated: 6 September 2013

Lieutenant General
Robert E. Schmidle, Jr.

Deputy Commandant for Aviation (MOB)

Lieutenant General Robert E. Schmidle, Jr., USMC, serves as the Deputy Commandant for Aviation. As the Deputy Commandant for Aviation, he sets policy and facilitates the manning, training and equipping of Marine Aviation units.

His command assignments include: Commanding General of First Marine Aircraft Wing, Commanding Officer of Special Purpose Marine Air-Ground Task Force (Experimental), and Commanding Officer of Marine Fighter/Attack Squadrons 251 and 115.

Previous operational assignments include multiple tours flying the F-4 and F/A-18 aircraft as well as serving as the operations officer and air officer of an Infantry Battalion, First Battalion 9th Marines.

Additionally, Lieutenant General Schmidle has served in the following key staff assignments: Deputy Commander for U.S. Cyber Command, Assistant Deputy Commandant of the Marine Corps for Programs and Resources (Programs), Deputy Chief of Staff for Integrated Product Team 1 for the 2006 Quadrennial Defense Review and USMC lead for the 2010 Quadrennial Defense Review, Deputy Director for Resources and Acquisition in the Joint Staff J-8, Director

of the USMC Expeditionary Force Development Center and the Military Secretary for the 32nd

and 33rd Commandants of the Marine Corps.

Lieutenant General Schmidle is a native of Newtown, Connecticut and graduated from Drew University with a Bachelor of Arts degree in History. He also holds a Master of Arts in Philosophy from American University and is currently working on his doctorate at Georgetown University He is a distinguished graduate and prior

faculty member of the Marine Corps

Command and Staff College as well as a distinguished graduate of the Marine Corps War College. Additionally, he has been published on a range of topics from military history to social psychology and philosophy.

United States Navy
Biography

Rear Admiral Michael C. Manazir
Director, Air Warfare (OPNAV N98)

Manazir, the son of a United States Marine, entered the U.S. Naval Academy from Mission Viejo, California, and graduated in 1981. He earned his Naval Aviation wings in April 1983, and deployed in the F-14A in July 1984.

Manazir commanded the Tomcatters of Fighter Squadron 31 (Jun97-Sep98), USS Sacramento (AOE1) (Jan03-Jul04), USS Nimitz (CVN68) (Mar07-Aug09) and Carrier Strike Group 8 embarked in USS Dwight D. Eisenhower (CVN 69) (Sep11-Jun13).

Prior to squadron command, his afloat tours included service as a fighter pilot and Landing Signal Officer aboard various aircraft carriers on the west coast. Following Navy Nuclear Power Training, Manazir served as the Executive Officer of the USS Carl Vinson (CVN 70) (Jul01-Dec02).

Ashore, Manazir served as an action officer in the Office of the Secretary of Defense, on the Chief of Naval Operations staff as F-14 Requirements Officer, and for the Commander, Naval Air Forces, as the Assistant Chief of Staff for Readiness.

As a flag officer, Manazir served as director, Strike Aircraft, Weapons, and Carrier programs on the Chief of Naval Operations Staff (N880) from Aug09-Sep11.

Manazir qualified in the F-14A/D and F/A-18E/F aircraft and has flown more than 3750 hours and 1200 arrested landings during 15 deployments aboard aircraft carriers on both coasts.

He is the recipient of various personal and campaign awards including the Legion of Merit (6), the Defense Meritorious Service Medal, the Meritorious Service Medal (2), and the Strike/Flight Air Medal (2). In 2007, Manazir was recognized as the Tailhooker of the Year by the Tailhook Association. Manazir has been married for 31 years and has two grown children.

Rear Adm. Manazir currently serves as the Director, Air Warfare (OPNAV N98) on the staff of the Chief of Naval Operations (CNO). In this capacity, Manazir is responsible for the development, programming, and budgeting of all U.S. Naval aviation warfighting requirements, resourcing and manpower.

Updated: 20 August 2013

NOT FOR PUBLICATION UNTIL RELEASED BY
HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON TACTICAL AIR AND LAND FORCES
U.S. HOUSE OF REPRESENTATIVES

DEPARTMENT OF THE AIR FORCE

PRESENTATION TO THE
HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON TACTICAL AIR AND LAND FORCES
U.S. HOUSE OF REPRESENTATIVES

SUBJECT: Fiscal Year 2015 Department of Defense Combat Aviation Programs

COMBINED STATEMENT OF: Dr. William A. LaPlante
Assistant Secretary of the Air Force
for Acquisition

Lieutenant General Burton M. Field
Deputy Chief of Staff for Operations,
Plans and Requirements

March 26, 2014

NOT FOR PUBLICATION UNTIL RELEASED BY
HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON TACTICAL AIR AND LAND FORCES
U.S. HOUSE OF REPRESENTATIVES

I. Introduction

Chairman Turner, Ranking Member Sanchez and distinguished members of the subcommittee, thank you for the opportunity to provide you with an update on Air Force tactical aviation programs. Today our Air Force is engaged globally, supporting the Combatant Commanders (CCDR) requirements and executing our National Military Strategy (NMS).

It takes the combined efforts of all of our military Services and the whole of government to deny, deter, and defeat an enemy, and over the last decade this integration has tightened. Just as we depend on our joint partners, every other Service depends on the Air Force to do its job. Whether it is Global Positioning System (GPS) information to navigate waterways, airlift to get troops to and from the fight, manning intercontinental ballistic missile (ICBM) silos to deter aggression, or reconnaissance and satellite communication to tell forces where enemy combatants gather or hide, the Air Force provides these capabilities, as well as many others. Here at home, our Airmen patrol the skies, ready to protect the homeland, and they are integral to the movement of people and lifesaving supplies when disasters, like Hurricane Sandy or the California wildfires, strike.

Over the past 35 years, the Air Force has been called upon more than 150 times to conduct combat or humanitarian operations in more than 50 countries around the world. As our world becomes more interconnected, Air Force capabilities that allow America to see, reach, and affect a situation anywhere on the globe within a matter of hours, will become even more critical. This capability to see what is happening and project power anywhere in the world at any time is what *Global Vigilance, Global Reach,* and *Global Power* are all about.

II. Current Environment

The magnitude of the cuts generated in Fiscal Year 2013 (FY13) by sequestrationwas difficult to absorb in the short term. We stood down 31 active component squadrons, to include 3 combat-coded squadrons for more than three months. We initiated civilian furloughs, putting extreme stress on the workload and personal finances of our civilian workforce. We cut maintenance of our facilities, in many cases by 50 percent, and delayed major maintenance actions, including depot aircraft overhauls.

With support from Congress, the Air Force was able to realign $1.7B into operations accounts. This allowed us to cover our overseas contingency operations requirements and enabled us to resume flying operations, but these budget adjustments came at a sacrifice to future weapon system modernization. Of the units affected by the FY13 sequestration, only about 50 percent have returned to their pre-sequestration combat ready proficiency levels, which was already much less than required, and it will take years to recover from the weapon system sustainment backlog.

Though the Bipartisan Budget Act (BBA) and the FY14 Consolidated Appropriations Act provided partial sequestration relief in FY14, and some help for FY15, they do not solve all of our problems. The additional funds help us reverse our immediate near-term readiness shortfalls and enable the Air Force to build a plan that mostly shields our highest priorities, including: flying hours; weapon system sustainment; top three investment programs; and key readiness requirements such as radars, ranges, and airfields. However, the tightening fiscal caps combined with the abrupt and arbitrary nature of sequestration in FY 2013 clearly drove the Air Force into a "more ready force today" versus a "more capable force tomorrow" dilemma, forcing us to sacrifice future modernization for current readiness.

During the development of the FY15 budget submission, the Air Force took a bold but realistic approach to support the Air Force 2023 framework and the 2012 Defense Strategic Guidance (DSG), as updated during deliberations on the 2014 Quadrennial Defense Review (QDR). To do this within fiscal guidance, including the Strategic Choices and Management Review, we had to make difficult trades amongforce structure (capacity), readiness, and modernization (capability). As a result, the Air Force established four guiding principles to steer our strategy and budget process.

(1) We must remain ready for the full-spectrum of military operations;

(2) When forced to cut capabilities (tooth), we must also cut the associated support structure and overhead (tail);

(3) We will maximize the contribution of the Total Force; and

(4) Our approach will focus on the unique capabilities the Air Force provides the joint force, especially against a full-spectrum, high-end threat.

Moving forward, we seek to maintain a force ready for the full range of military operations while building an Air Force capable of executing our five core missions: 1) air and space superiority; 2) intelligence, surveillance, and reconnaissance (ISR); 3) rapid global mobility; 4) global strike; and 5) command and control, all against a well-armed and well-trained adversary in 2023 and beyond.

The FY15 budget request attempts to develop and retain the most critical force structure and capabilities to maintain the Air Force's ability to rapidly respond to global demands in most missions. We will become smaller, which will require new approaches to reducing the rotational or current commitments in order to sustain it. Thisforce structure reduction is budget-driven and not a logical consequence of transitioning out of nearly 13 years of war. In fact, the Air Force has progressively reduced its size since September 11, 2001; for example, we had 75 combat fighter squadrons in 2001, and today we have 55, with further cuts to 48 projected by the end of the Future Years Defense Program (FYDP) (FY19). In addition, history since the 1991 Gulf War suggests the Air Force will not experience a significant reduction in operations tempo even when Operation ENDURING FREEDOM combat operations end. Fighter, bomber, command and control (C2), ISR, personnel recovery, and special operation forces (SOF) assets are likely to remain in high demand. To compound matters, the Air Force still has not recovered the readiness lost due to sequestration in FY13, and readiness was unacceptably low even before sequestration. Despite these present challenges, we cannot afford to mortgage the future of our Air Force and the defense of our Nation. Recapitalization is not optional—it is required to execute our core missions against a high-end threat for decades to come.

If we continue to be funded at the FY15 budget top line level, we can continue a gradual path of recovery to combat readiness levels that enable us to meet the full range of operational missions, begin to close the gap in munitions inventories, and protect investments such as the new training aircraft system and the next generation of space-based systems. Additionally, the President has proposed an additional Opportunity, Growth, and Security Initiative (OGSI) to accompany the FY15 budget request. For the Air Force, this $7B additional investment would enhance our

readiness posture, enable us to fund critical modernization programs, accelerate our recapitalization efforts, and improve our installations and bases.

A sequestration-level budget would result in a very different Air Force. To pay the sequestration-level bill, we will have to sacrifice current tanker and additional ISR capacity by divesting KC-10 and RQ-4 Block 40 fleets, decrease F-35 quantities, all of our major investment programs will be at risk, and our readiness recovery will be significantly slowed due to required cuts in weapon system sustainment and ranges, as well as reduced levels of investments in preferred munitions. A return to sequestration-level funding would result in a less ready, less capable, less viable Air Force that is unable to fully execute the defense strategy.

The FY15 budget request does not enable full near-term recovery of warfighting capability, capacity and readiness, but we have made the risk-informed decision to re-strike the balance, ultimately trading some current capacity and modernization for future readiness and recapitalization. When building the budget, there were no easy choices. We divested fleets and cut manpower that we would have preferred to retain. We focused on global, long-range, and multi-role capabilities, especially those that can operate in contested environments, which meant keeping key recapitalization programs on track.

III. Operations Update

Today, the Air Force flies and fights in air, space, and cyberspace—globally and reliably—as a valued member of our Joint and Coalition teams. Approximately 218,000 Total Force Airmen are "committed in place" supporting daily Combatant Command operations to defend the homeland, provide command and control of our nuclear forces, operate remotely piloted aircraft, provide rapid global mobility, and many other requirements. Over 28,000 Airmen are deployed across the globe, including more than 20,000 in the U.S. Central Command Area of Responsibility. The Air Force is an active partner in Department of Defense planning that will shift our emphasis from today's wars to a broader range of challenges and opportunities. The Department of Defense is currently reassessing the strategic guidance issued last year, but we anticipate continued emphasis on and planning for a rebalance to the Asia Pacific region. Our

challenge is to provide those who deploy in support of our global commitments an Air Force that is capable, agile, flexible, ready, and technologically advanced.

In Calendar Year 2013 (CY13), Air Force global precision attack aircraft flew over 21,000 sorties and logged 40,000 hours in support of Overseas Contingency Operations. On the home front, Air Force fighter, air refueling, and early warning aircraft have flown over 64,000 total sorties supporting Operation NOBLE EAGLE since September 11, 2001. As a testament to the capability of our Total Force, the Air National Guard and Air Force Reserve have flown more than 65 percent of these sorties.

However, aviation is not without risk. In FY13, there were 19 Class A aviation flight mishaps, including 14 destroyed aircraft and 11 fatalities. This was a decrease in one Class A aviation flight mishap from FY12, and an increase in destroyed aircraft and fatalities from the FY12 numbers of 10 aircraft destroyed, and nine fatalities respectively. Analysis of these events found trends similar to previous years, with the top two mishap factors being compliance and decision-making errors.

There were 33 Class B aviation flight mishaps in FY13, significantly higher than the 23 in FY12. Class C aviation flight mishaps stayed relatively consistent with 262 in FY13, slightly below the 269 total in FY12. Additionally, FY13 Unmanned Aerial System mishaps decreased across the board in Class A, B and C mishaps from FY12. Class A mishaps dropped from 13 to 12, Class B mishaps from four to one, and Class C from 16 to 13.

IV. Force Structure and Modernization

Fighters

Air Force fighter force structure is dependent on both fighter aircraft and rated manning. Three years ago, the Air Force determined through extensive analysis that a force structure of 1,200 primary mission aircraft and 2,000 total aircraft was required to execute the NMS with increased operational risk. Two years ago, based on the 2012 DSG and fiscal constraints, the Air Force rebalanced our force structure across core functions. Analysis showed the Air Force could decrease fighter force structure by approximately 100 aircraft with higher risk, resulting in the current fighter requirement of 1,100 primary mission aircraft and 1,900 total aircraft. The 2014

QDR Report also advances an updated national defense strategy that embodies and builds on the DSG priorities. The Chairman's assessment of the QDR strategy states we will continue to need capabilities that can operate effectively in contested environments. During the build of the FY15 budget, fiscal constraints drove force structure divestments of 334 fighters, leaving a fighter force structure significantly below the 1900 total aircraft requirement. Fiscal pressures drove these tough choices—balancing today's needs against tomorrow's—and accepting near-term risk today to be ready and viable tomorrow.

The Air Force's fighter fleet is approaching 30 years old on average—the oldest in our history. Without service life extensions and capability upgrades, it will not be possible to manage risk. The Air Force is pursuing programs that will modernize and extend the service life of our remaining fleet. The F-35 is a key component in preserving future force structure and mitigating risk. Any further delay in the F-35 program will create a serious shortfall (mid and far-term) in fighter capabilities and force structure. The Air Force is very concerned with recent budget reductions and continues to monitor how these cuts will affect risk. Air Force modernization of legacy systems was traded to pay for readiness and continue to fund our top three investments. It is absolutely critical that selected fourth generation sustainment and modernization efforts continue, the F-22 continues to modernize, and the F-35 matures and begins Full Rate Production (FRP) to avoid further increases in risk.

Manning our current force is a challenge we continually work. Air Force mission success dependson efficient management of our rated force , the most challenging of which is fighter force structure manning. The Air Force is currently 240 fighter pilots short of the total manning requirement and our projections indicate this deficit growing to approximately 500 by 2022. The shortfall evolved from force structure reductions that cut active duty fighter squadrons and fighter training squadrons to a number that cannot sustain billet requirements. As a result, the Air Force is currently unable to produce and experience the required number of fighter pilots across the total force. The Air Force is prioritizing overall available rated manpower to fill our operational cockpits, at significant risk to institutional requirements. Projected impacts include reductions in air-operations expertise during the development of war plans and a gradual erosion of fighter pilot experience in test and training. Recent programming and policy actions raised production and absorption capacities, but current fiscal constraints place the implementation of

these actions at risk. However, even with these changes, the Air Force is only able to slow the decline in fighter pilot inventory and will be incapable of meeting our overall requirement for fighter pilot expertise for the foreseeable future.

A-10

Beginning in FY15, the Air Force will retire the entire A-10 fleet of 283 aircraft, resulting in a savings of $3.7B ($4.2B including cost avoidance). The A-10 provides our Joint Force Commanders with responsive, lethal, precise, and persistent firepower for close air support and combat search and rescue, and has been a steady, stellar performer in all recent conflicts. It was a tough decision to retire the fleet, but under current fiscal constraints, we made the strategic decision to divest this platform, which cannot survive or operate effectively in a highly contested environment where there are more advanced aircraft or air defenses. As ably shown in Iraq and Afghanistan, we will rely on other platforms to provide effective close air support, from multi-role fighters to B-1 bombers to remotely piloted aircraft; however, these decisions do not come without risk or impacts to the mission. One of the impacts to using other platforms for close air support (CAS) is that use of these platforms for CAS must be balanced with their other missions, putting stress on the force in certain scenarios. Divesting the entire fleet allowed us to harvest savings we could then apply to efforts that allow us to be ready and viable tomorrow.

The FY15 budget does not fund future modernization efforts for A-10 aircraft; however, we will continue to fund modernization programs to keep the aircraft viable until 2019.

F-16

Our primary multi-role fighter aircraft, the F-16 comprises 50 percent of ourfighter fleet. The FY15 budget request invests $1.04B across the FYDP for F-16 modernization and service life extension to meet critical warfighter needs to 2025 and beyond. The majority of efforts in the FYDP focus on Legacy Service Life Extension Program (SLEP), Operational Flight Program (OFP) enhancement, and a new start program for upgrades to the Modular Mission Computer (MMC) and Programmable Display Generator (PDG).

Legacy SLEP will extend the airframe structural service life for 300 aircraft by approximately 25 percent from the current 8,000 hours to 10,000+ hours, adding about six to eight years. The

FY15 budget request continues design and development of structural modification kits for the Block 40-52 fleet to be responsive to the Air Force's total fighter requirement. The FY15 budget request for OFP enhancement will continue the integration of new weapons, avionics and improved targeting pods. The FY15 new start for the MMC and PDG upgrade will resolve processor, memory, and bandwidth issues that will allow capability growth through future OFP development.

The Combat Avionics Programmed Extension Suite (CAPES) program contains four distinct pieces that provide critical new capabilities to the F-16, including an Active Electronically Scanned Array (AESA) radar, a center display unit, an ALQ-213 integrated electronic warfare management system, and an integrated broadcast service (IBS) that integrates off board threat data and blue force tracking via SATCOM. Originally, 300 aircraft were scheduled to be upgraded with these capabilities, but the program was unfunded in FY15. The modernization of fourth generation aircraft continues to be a critical bridge with the fifth generation fleet and, although the Air Force is continuing with selected F-16 modernization, the lack of these specific avionic upgrades will result in F-16 Block 40-52 aircraft that will not be nearly as effective in a contested environment and will put the Air Force at greater risk from emerging threats.

To partially mitigate the impact of terminating CAPES, we are upgrading the F-16's electronic attack pod. This upgrade brings the self-protection capabilities of the aircraft in line with current and emerging threats, thereby increasing its effectiveness in the contested environments we expect it to encounter.

F-15 C/D

The FY15 budget request divests the F-15C/D fleet by 51 aircraft across the FYDP. The FY15 budget request invests approximately $1.9B across the FYDP on modernization and sustainment programs for the remaining F-15C/D fleet. We project the F-15C/D fleet will remain viable until at least 2035, with potential for an airframe service life extension following full-scale fatigue testing. This test is underway and will conclude in 2014. The Air Force manages the fleet through scheduled field and depot inspections under an individual aircraft tracking program.

We continue to modernize our F-15C/D fleet with AESA radars, a more capable aircraft mission computer, and a new electronic warfare self-protection suite, the Eagle Passive/Active Warning Survivability System (EPAWSS). This new system will be absolutely crucial to ensuring the F-15C/D is able to operate into the future, especially in highly contested environments. We have had to delay EPAWSS for one year to remain within budget constraints. We expect these efforts to enable 179 F-15C aircraft to operate safely and effectively through at least 2035 as determined by the full-scale fatigue test.

F-15E

The FY15 budget request invests approximately $2.5B across the FYDP for F-15E modernization and sustainment programs. This request includes integrating the latest precision weapons to hit targets accurately and reduce collateral damage, and adding a helmet mounted cueing system for all front seat cockpits that will reduce the F-15E's time to engage a target. Finally, we are adding a state-of-the-art AESA radar system advancing capabilities to identify and engage targets, a more capable aircraft mission computer, and a slightly delayed self-protection electronic warfare system (EPAWSS). As with the F-15C/D, the EPAWSS system will be absolutely crucial to ensuring the F-15E is able to operate into the future in highly contested environments. The Air Force expects the F-15E to be an integral part of the Nation's force through at least 2035. A full-scale fatigue test, due to be complete in 2015, will provide data regarding the feasibility of a service life extension.

Fifth Generation Fighters

Vital elements of our nation's defense and deterrent capability are fifth generation fighters like the F-22A and F-35. These advanced, state-of-the-art aircraft are absolutely essential to maintain our current global superiority that permit air, sea, and ground forces freedom of action. Each aircraft possess exclusive, complimentary, and indispensable capabilities that provide synergistic effects across the spectrum of conflict. As future adversaries modernize, our legacy fourth generation aircraft will have limited capability to operate in a highly contested environment. Our Air Force must continue to invest in fifth generation weapon systems, and begin looking even further into the future, to ensure continued dominance of American Airpower.

F-22

The F-22 Raptor is the only currently operational U.S. fighter currently capable of operating in highly contested environments. F-22 attributes of stealth, super cruise, integrated avionics and sensors combine to deliver the Raptor's unique operational capability. F-22 modernization is required to counter advancing threats that specifically target F-22 capabilities. Accordingly, F-22 modernization is consistent with the DSG to "invest as required to ensure [the] ability to operate effectively in [anti-access and area denial] environments". Focused on maintaining operational superiority against the evolving threat, the FY15 budget request for F-22 modernization investment includes $330.6M in RDT&E in addition to $331M in procurement. Increment 3.1 is fielding now and is scheduled to be complete in FY17, delivering advanced air-ground capabilities including Synthetic Aperture Radar (SAR) ground mapping, threat geolocation, and Small Diameter Bomb (SDB) carriage. Increments 3.2A/B remain on track for fielding in 2015/2018 respectively, and will deliver advanced electronic protection and combat identification, AIM-120D and AIM-9X missile capability, and significantly-improved ground threat geolocation.

The F-22 is operating safely world-wide, averaging about 26,000 flying hours a year since return to flight in September 2011. It has been over 24 months since the last unknown-cause hypoxia-like event occurred. Notably, the retrofit of the Automatic Back-up Oxygen System is on track for completion by 2015. Fielding of this system at Elmendorf Air Force Base is complete. The remaining fleet will be complete by mid-April 2015.

F-35

During FY15, the Air Force will continue to manage risk across the global precision attack portfolio by prioritizing investment in fifth-generation aircraft while sustaining legacy platforms as a bridge to the F-35 Joint Strike Fighter.

The multi-role F-35A is the centerpiece of the Air Force's future fighter precision attack capability. In addition to complementing the F-22's world class air superiority capabilities, the F-35A is designed to penetrate air defenses and deliver a wide range of precision munitions. This modern, fifth-generation aircraft brings the added benefit of increased allied interoperability and cost-sharing across Services and eight partner nations. The FY15 budget request includes

$4.9 billion for continued development and procurement of 26 F-35A, conventional take-off and landing (CTOL) aircraft. The program continues to make steady progress in overcoming software development delays and technical issues.

During CY13, the F-35 program team achieved a number of significant milestones, including: award of production contracts for aircraft Low Rate Initial Production (LRIP) Lots 6 and 7 and engine LRIP Lot 6; commencement of flight operations at Nellis Air Force Base; and the first live fire launch of an AIM-120 Advanced Medium Range Air-to-Air Missile (AMRAAM) from an F-35. Additionally, the program team completed all planned weapon separation events, the first multi-function advanced data link 4-ship connectivity test, and successful weapons delivery tests for the Joint Direct Attack Munition (JDAM). Thirty-five production aircraft were delivered for the Air Force, Navy, and Marine Corps, the program reached over 10,000 test and operational flight hours, and nearly fifty F-35A pilots have now been trained at Eglin Air Force Base. Further, the 61st Fighter Squadron at Luke Air Force Base was reactivated as the first of six training squadrons at the new pilot training center, and Hill Air Force Base and Burlington Air Guard Station were announced as the first operational locations for the Air Force.

In FY14, the Air Force plans to procure 19 F-35A CTOL aircraft. Sequestration did not affect Air Force procurement quantities in 2014.

Affordability remains a major priority, and the F-35 program made great strides on this front in 2013. In the negotiations concluded for aircraft LRIP Lot 7 and engine LRIP Lot 6, costs dropped over 4 percent and 2 percent per unit, respectively, from previous lot negotiations, representing a decrease of approximately $5M in unit recurring flyaway cost for each F-35A. In addition, the Joint Program Office, in partnership with prime contractors Lockheed Martin and Pratt &Whitney, established a Cost War Room to continue driving down development, production, and sustainment costs. These combined efforts have resulted in a number of cost reduction initiatives that will continue to be analyzed in 2014.

The progress made so far and the steps we take today are crucial in our efforts for declaring F-35 Initial Operational Capability (IOC). After the 2012 program re-baseline and Milestone B re-certification, the joint services were tasked to provide Congress our updated IOC criteria and

timeline estimates by June 1, 2013. These IOC criteria and IOC dates were established, and the Air Force plans to reach IOC for the F-35A by December 2016 (threshold).

Steady progress continues to be made on the development program, with over 50 percent of planned testing complete. The Joint Program Office has reduced risk on the helmet mounted display system, certification of night/IMC operations, fuel dump, and lightning protection issues. However, software remains the number one technical risk. We expect to reach initial warfighting capability, with Block 2B/3i software, and meet Air Force IOC as scheduled in 2016, but there is risk in reaching Full Warfighting Capability with Block 3F as planned in 2017. Maturity of the Autonomic Logistics System (ALIS) remains a concern. The Air Force understands ALIS is a necessary and integral element of the F-35 weapon system, and as such, is a top program priority. As designed, ALIS will tie F-35 mission planning, operational flight, ops and maintenance training, debrief, tech and flight manuals, prognostic health management, and supply chain management into one seamless information system. Corrective actions for ALIS deficiencies are in work, and a maintenance release in place at Eglin Air Force Base and Marine Corps Air Station Yuma are successfully addressing many user concerns in an effort to improve aircraft turnaround time. Improvement in ALIS is now tied to the projected increase in production ramp rate beginning in 2015.

Air-to-Surface Weapons

All three mission areas (Stand-Off, Direct Attack, and Penetrator munitions) in the Air-to-Surface munitions inventory are short of inventory objectives. The most critical are stand-off and penetrator weapons. Joint Air-to-Surface Standoff Missile (JASSM) and SDB weapons along with Low Observable platforms are force multipliers in a highly contested environment and their shortage could increase friendly force attrition drivinga much higher level of effort enabling the attack of other critical targets. The shortage of penetrator weapons will result in some inability to target adversary critical capabilities and increase risk. Direct attack munitions shortages drive the use of non-preferred munitions with decreased effectiveness and resulting in increased time and Air Force attrition to accomplish CCDR objectives.

JASSM and JASSM-ER

JASSM and JASSM-ER (Extended Range) are currently the nation's only stealthy, conventional, precision, launch-and-leave, standoff missiles capable of fighter and bomber aircraft employment. They are capable of penetrating next generation enemy air defenses to strike high value, hardened, fixed, or mobile targets. The JASSM (baseline) has a range greater than 200nm while the JASSM-ER has a range greater than 500nm.

The JASSM (baseline) weapon is in FRP; the 11th and 12th production contracts were awarded to Lockheed Martin on December 19, 2013, for a total of 340 missiles. About 1,230 missiles have been delivered; of these about 1,000 are in the field and about 230 at the Lockheed Martin production facility for repair, mostly for the surface wrinkling due to exposure to high humidity conditions. The repair is fully covered by the warranty with no additional cost to the Air Force. A new coating (starting at lot 8) has corrected the surface wrinkling problem. FY16 is the last JASSM (baseline) buy for a total procurement of 2,054 missiles.

JASSM-ER is currently in LRIP; the 3rd and 4th LRIP contracts were awarded to Lockheed Martin on December 19, 2013, for a total of 100 missiles. A problem with the fuel supply motor initially delayed the deliveries of the 30 LRIP lot 1 JASSM-ER missiles; however, the problem was resolved and deliveries will complete in April 2014. JASSM-ER will start FRP in FY15. The combined JASSM production line transitions to JASSM-ER only at the maximum and most efficient rate of 360 missiles per year. The last JASSM-ER procurement is planned for FY23, for a total JASSM-ER buy of 2,846 missiles.

SDB II

The SDB II will fill the capability gap of attacking mobile targets at standoff ranges through the weather outside of point defenses using a multi-mode seeker and dual band weapon data link. SDB II will be a force multiplier in the number of targets platforms can attack per sortie while inherently limiting collateral damage. Providing a four-fold increase in load out with its carriage system will allow the limited number of initial combat forces to achieve operational objectives early in conflicts, paving the way for follow-on forces. SDB II is an Acquistion Category (ACAT) ID program with the Air Force as the lead service in partnership with the

Navy. Initial aircraft integration of the SDB II will be on the F-15E (Air Force threshold), F-35B & C (DoN threshold), F/A-18E/F and AC-130W.

Currently, SDB II is in Engineering, Manufacturing and Development with an LRIP decision planned by the end of this fiscal year. In FY15, SDB II will continue developmental testing, complete live fire testing, and conduct government confidence test shots. The FY15 procurement plans are to buy 246 weapons with deliveries starting in FY17. SDB II fielding on the F-15E is planned for January 2017. The Air Force total planned procurement for SDB II is 12,000 weapons.

Air-to-Air Weapons

Air-to-Air missile inventories are short of objectives. AIM-120 AMRAAM and the AIM-9X continue to be in short supply. These weapons enable the joint force to achieve Air Superiority by providing a first look first kill capability. The shortage of Air-to-Air missiles will increase the number of days required to gain Air Superiority, and will decrease the amount of time the Joint Force can maintain Air Superiority, which may leave the combatant commander short of their campaign objectives.

AIM-120D AMRAAM

The AIM-120 AMRAAM is the Department of Defense's premier beyond-visual-range missile to counter existing and emerging air vehicle threats, operating at high or low altitude with electronic attack capabilities. AMRAAM is a key enabler for gaining air superiority and air dominance providing F-22, F-16, F-15, F/A-18, and eventually F-35 aircraft the ability to achieve multiple kills per engagement. The latest evolution of AMRAAM is the AIM-120D, which brings increased range and kinematics, improved high off-boresight targeting, and an enhanced two-way data link for improved accuracy and lethality at range. AIM-120D is an ACAT 1C joint program, with the Air Force as lead service in partnership with the Navy. The AIM-120D Operational Test Readiness Review was successfully completed in May 2012 and the program is currently in dedicated operational testing.

Operational testing is expected to be complete in this fiscal year and fielded on F/A-18 E/F and F-15 C/D aircraft. Total procurement for FY15 is 200 units with increases in future procurement

quantities for both the Air Force and Navy. The program will continue to update the AMRAAM technical data package to ensure a viable, producible design through the expected production life of the AMRAAM program, and to maintain a robust supplier base capable of sustaining production for the life of the program.

Updates Requested by Congress

Industrial Base

The Air Force has been concerned over the future of the aerospace industrial base particularly in the segment supporting engineering design and development of tactical aircraft for several years. For the first time in over 50 years, there is only one tactical aircraft in development, the F-35. When production of the F/A-18 and the F-15 ends, there will be only one prime contractor producing tactical aircraft.

This situation presents a national challenge. Given the current fiscal constraints, how do we provide meaningful opportunities to develop, sustain, and advance the design, engineering, and technical knowledge to preserve our lead in this mission area? The Air Force continues to invest in key areas such as advanced turbine engines. However, as with all other programs, there are no easy choices left. We are accepting the risk that some elements of the current aerospace industrial capacity may atrophy. These capabilities, in terms of engineering and design teams, production workers, and facilities may need to be reconstituted to meet future requirements.

RQ-4 and U-2

The decision to buy-back the RQ-4 and retire the U-2 in the FY15 budget was a difficult decision for the Department. The Air Force has long maintained that both platforms have their unique strengths, and they are in many ways complementary. In a BCA environment we simply cannot afford to keep both. The FY15 budget process reviewed the RQ-4 and U-2 decision in light of opposing National Defense Authorization Act (NDAA) language prohibiting the retirement of either system. Given that only one of the systems is necessary to meet High Altitude ISR Combat Air Patrol requirements, while still not meeting overall ISR demand, the department decided to retain the RQ-4 and retire the U-2.

The DoD determined the Block 30 was sufficient to meet the requirements when considered within the total portfolio of ISR capabilities. The lower operating cost of the Global Hawk, as seen in the reduction of the RQ-4 cost per flight hour, enabled by its greater endurance, became the primary rationale for retaining the RQ-4. Although upgrades to the Block 30 will cost more in the near-term versus keeping the U-2, the potential long-term cost savings provided a rational basis to retain the RQ-4. The Air Force is committed to modernizing its ISR enterprise with the RQ-4 Block 30 as an important component combined with other capabilities that will meet current and future Combatant Command requirements.

Historically, the CCDR's ever growingdemand for ISR has exceeded the Air Force's current force structure and capacity. Even with both the U-2 and RQ-4 fleets, the Air Force will not be able to meet the total COCOM demand. To provide a complementary ISR force structure capable of meeting the daily intelligence demand signal, the Air Force would require significant investment that is not affordable.

The Air Force will have less force structure, capacity, and ISR support to conventional high-altitude wartime ISR requirements compared to keeping both the U-2 and RQ-4 Block 30 forces. However, the department determined that the RQ-4 Block 30 force structure is sufficient when combined with other capabilities. Some losses in ISR capability and capacity can be mitigated with upgrades to the RQ-4 over the next five to ten years and by utilizing the larger ISR capability portfolio. Even with our best mitigation measures, some increased risks to combat and peacetime ISR collection remains. However, the Department is willing to accept some risks while focusing on the ISR core competencies and long term affordability.

CV-22

The current CV-22 fleet stands at 37 aircraft. The Air Force will execute the final buy in FY14 which includes one Operational Loss Replacement (OLR) aircraft. Declaration of full operational capability is scheduled to follow delivery of the last CV-22 in FY17, for a total of 50 operational AFSOC aircraft.

The Joint V-22 Program Office is increasing CV-22's capabilities while at the same time executing an aggressive improvement program; both continue to make significant progress. The Program Office has emphasized improving CV-22 engine time-on-wing, which has resulted in

doubling the engine time-on-wing since FY10. The CV-22 also experiences engine stress due to operating and training in austere desert environments. In FY15, the Air Force will continue development of an improved engine inlet to address sand ingestion problems that severely degrade engine performance.

In addition to these critical engine upgrades, the Air Force continues to make other improvements to the CV-22. Retrofit modifications recently brought the oldest CV-22s to the current configuration. The Air Force has also initiated modifications designed to improve reliability/maintainability, safety, deployability, and mission effectiveness. Future modifications and improvements will make the CV-22 even more reliable, productive, and cost-effective, ensuringfuture availability of this long-range vertical take-off and landing capability.

Combat Rescue Helicopter (CRH)

The Air Force is the only Service with a dedicated force organized, trained, and equipped to execute theater-wide Personnel Recovery. The CRH will replace the aging HH-60G, our current Personnel Recovery platform, which routinely operates from austere locations to recover personnel isolated from friendly control. Accordingly, CRH will be outfitted for delivery and extraction of Para-rescue teams. These teams are trained in small unit tactics and advanced battlefield trauma medicine from hostile landing zones. The CRH will also deliver first responders during disaster relief and humanitarian assistance operations. Finally, the CRH will likely be called on to continue support of special operations and medical evacuation missions, as the HH-60G has been over the past several years.

Due to the advancing age and current attrition rates of the HH-60G, the Air Force must continue to modify existing HH-60G helicopters and utilize the OLR program to meet operational requirements until we can fully recapitalize with the CRH. The CRH program provides 112 aircraft to replace the legacy HH-60G fleet. The contract for this effort is currently funded and on pace to award in FY14 in order to reach IOC in 2021.

Command and Control (C2)

Command and Control, as a core function, is fundamental for all other Air Force Core Functions. The C2 vision is to provide sufficiently robust, scalable, flexible, and rapidly deployable C2

capabilities, enabling commanders to fully exploit air, space, and cyberspace capabilities. Underpinning the proper employment of Airpower is the Air Operations Center (AOC)—the senior element of the Theater Air Control System (TACS) which serves as the focal point for planning, directing, and assessing air, space, and cyberspace operations to meet Joint Force Air Component Commander operational objectives and guidance.

The C2 emphasis in the FY15 budget complies with the Department of Defense's budget reduction goals while maintaining an adequate C2 capability. The FY15 budget request supports the AOC, E-8C Joint Surveillance Target Attack Radar System (JSTARS), E-3 Airborne Early Warning and Control System (AWACS), and Three-Dimensional Expeditionary Long Range Radar (3DELRR) programs.

Based on the outcome of the 2011 Airborne SAR, Moving Target Indicator JSTARS Mission Area Analysis of Alternatives (AoA), the Air Force is requesting funds in the FY15 budget to recapitalize the E-8C JSTARS, while the E-3 AWACS will continue modernization activities. The 3DELRR program entered source selection in December 2013 for a new ground based sensor.

E-8C JSTARS and JSTARS Recapitalization

The E-8C JSTARS is the airborne Command, Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) platform for air-to-ground Battle Management operations. It provides long-endurance, all-weather, surveillance and targeting of moving and stationary targets via Ground Moving Target Indicator (GMTI) and SAR technology.

Based on the results of the Airborne SAR/MTI JSTARS Mission Area AoA in 2011, the Air Force has begun a JSTARS Recapitalization (Recap) effort. The JSTARS Recap, which is fully funded throughout the FYDP, will use an affordable commercially available aircraft, reducing operation and sustainment costs by 27 percent compared to the E-8C. The new platform willreduce the logistics footprint and improve operational capability with an advanced ground surveillance radar and on-board battle management suite. JSTARS Recap is slated for IOC in FY22 and our plans are to procure a total of 16 aircraft.

JSTARS Recap will continue to provide a unique blend of Battle Management Command and Control (BMC2) and Intelligence, Surveillance, and Reconnaissance (ISR) capabilities that enable the central tenet of Air Forces doctrine "Centralized Control and Decentralized Execution". Crews onboard the JSTARS use its wide area ground surveillance radar to build situational awareness and identify targets which are passed to strike assets or crossed cued with ISR platforms. The capability to perform this dual mission at the tactical edge provides C2 mission assurance in a contested environment.

To partially fund the Recap in the current fiscal environment, the Air Force will reduce the size of the E-8C JSTARS fleet. Through the transition, the Air Force will retain sufficient E-8C aircraft and crews to meet CCDR's most important requirements. The Air Force approached the decision to reduce the legacy E-8C fleet with a balanced risk perspective. Ultimately, we reduced capacity in the short term, at an appropriate risk level, in order to gain the capability and capacity required to operate in future highly-contested environments.

E-3 AWACS

The E-3 AWACS fleet is the Department of Defense's premier airborne surveillance and BMC2 weapon system. AWACS is a key airborne element of the TACS and delivers combat effects of BMC2, Battlespace Awareness (BA) and Decision Superiority (DS). As a rapidly deployable system, the E-3 is often the first surveillance and BMC2 capability in theater.

Current modernization efforts focus on upgrading the battle management mission systems, combat identification and the cockpit avionics suite. These upgrades provide AWACS with the computing and communications architecture required for participation in a net-enabled battlespace, as well as avionics free from Diminishing Manufacturing Source (DMS) issues and mandated for continued worldwide airspace navigation. Additionally, AWACS is modernizing its wide-band communication capability to allow for netcentric operations and data exchange with other weapon systems and elements of the enterprise, as well as performing sensor upgrades to mitigate the effects of advanced electronic attack in contested environments.

With the implementation of the modernization programs, AWACS is adequate for executing the National Military Strategy, but the platform will require future initiatives to address emerging

adversarial threats and for effective participation in coalition or joint networked battlespace. Future capability enhancements will depend on the priority and phasing of funding relative to other Department of Defense efforts, and difficult choices will be required to live within the constraints.

Under current fiscal constraints, the Air Force made significant across the board reductions while staying as consistent as possible with strategic guidance. This included reducing the AWACS fleet from 31 to 24 aircraft to retain critical modernization programs needed for Joint Air Command and Control in highly contested environments. Additionally, evidence of increased corrosion and aging aircraft issues are becoming more prevalent, thus leaving the AWACS fleet struggling to consistently meet Air Combat Command's Mission Capable Requirement. To resolve the capacity shortfall created by the fleet reduction and increasing corrosion/aging aircraft issues, the Air Force is funding an AoA to consider modern and efficient solutions for the follow-on Airborne BMC2 mission along the lines of the work accomplished in support of JSTARS.

IV. Conclusion

The Air Force continues to be the world's finest across the spectrum of conflict, but the gap is closing. A return to sequestration-level funding would result in a less ready, less capable, less viable Air Force that is unable to fully execute the defense strategy. At FY15 BBA-level funding, the Air Force has some ability to manage risk in supporting the strategy, but significant challenges will remain. In order to defeat advancing threats, the Air Force must continue investments in top recapitalization and key modernization programs, and gain and maintain full-spectrum readiness.

Our sister services and allies expect the Air Force to provide critical warfighting and enabling capabilities. We remain focused on delivering Global Vigilance, Reach and Power, through our core missions of Air and Space Superiority, Global Strike, Rapid Global Mobility, Intelligence, Surveillance and Reconnaissance and Command and Control. We look forward to working closely together as we address the challenges of near-term uncertainty and risk to provide the ability to deliver combat air power for America when and where we are needed.

BIOGRAPHY

UNITED STATES AIR FORCE

DR. WILLIAM A. LAPLANTE

Dr. William A. LaPlante is the Assistant Secretary of the Air Force (Acquisition), Washington, D.C. He is the Air Force's Service Acquisition Executive, responsible for all Air Force research, development and acquisition activities. Dr. LaPlante oversees a research and development, test, production and modernization program portfolio of over $32 billion annually. He is also responsible for development and execution of policies and procedures in support of the operation and improvement of the Air Force's acquisition system.

Dr. LaPlante has more than 29 years of experience in defense technology including positions at the MITRE Corporation and the Johns Hopkins University Applied Physics Laboratory. He has also served on the Defense Science Board (DSB), U.S. Strategic Command Senior Advisory Group and Naval Research Advisory Committee. He has also taught as an adjunct lecturer in the Department of Mechanical Engineering at the Catholic University of America.

Prior to entering public service in 2013, Dr. LaPlante was the Missile Defense Portfolio Director for the MITRE Corporation. In this role, Dr. LaPlante led a technical team providing analytic and system engineering expertise across the Missile Defense Agency portfolio of ballistic missile defense systems. Previously, he was the Department Head for Global Engagement at the Johns Hopkins University Applied Physics Laboratory (JHU/APL) where he was responsible for all of APL's work supporting offensive military capabilities. Dr. LaPlante was a member of APL's Executive Council and served on many other Laboratory leadership initiatives. His earlier APL work included Associate Department Head of the National Security Technology Department and Program Area Manager for the Strategic Submarine Security Program.

Dr. LaPlante has also served on numerous prestigious scientific boards. He was appointed to the Defense Science Board (DSB) in 2010 where he co-chaired a study on Enhancing the Adaptability of U.S. Military Forces and participated in studies on technology and innovation enablers, missile defense, cyber resiliency and contractor logistics. Dr. LaPlante chaired a Commander, USSTRATCOM Strategic Advisory Group study on nuclear planning factors and participated in various studies sponsored by the National Academy of

Sciences, the Naval Research Advisory Committee, USSTRATCOM and the Office of the Secretary of Defense (Acquisition, Technology and Logistics).

EDUCATION

1985 Bachelor of Science degree in engineering physics, University of Illinois
1988 Master of Science degree in applied physics, Johns Hopkins University
1998 Doctorate in mechanical engineering, Catholic University of America

CAREER CHRONOLOGY

1. 1985, Began career at Johns Hopkins University Applied Physics Laboratory, Laurel, Md.
2. 1993 - 1998, Chief Scientist and Technical Director for several large at-sea submarine security experiments, Johns Hopkins University Applied Physics Laboratory, Laurel, Md.
3. 1998 - 2001, Program Area Manager for the Strategic Submarine (SSBN) Security Program, Johns Hopkins University Applied Physics Laboratory, Laurel, Md.
4. 2001 - 2003, Business Area Executive for Undersea Warfare and Associate Department Head, National Security Technology Department (Undersea Warfare, Homeland Security and Biomedicine), Johns Hopkins University Applied Physics Laboratory, Laurel, Md.
5. 2003 - 2011, Department Head, Global Engagement Department, Johns Hopkins University Applied Physics Laboratory, Laurel, Md.
6. 2011 - 2013, Missile Defense Portfolio Director, MITRE Corporation, McLean, Va.
7. 2013 - 2014, Principal Deputy Assistant Secretary of the Air Force (Acquisition), Washington, D.C.
8. 2014 - present, Assistant Secretary of the Air Force (Acquisition), Washington, D.C.

OTHER ACHIEVEMENTS

Defense Science Board Member
USSTRATCOM Strategic Advisory Group Member
Lecturer, Department of Mechanical Engineering, Catholic University of America

(Current as of March 2014)

BIOGRAPHY

UNITED STATES AIR FORCE

LIEUTENANT GENERAL BURTON M. FIELD

Lt. Gen. Burton M. Field is the deputy chief of staff for operations, plans and requirements, Headquarters U.S. Air Force, Washington, D.C. He is responsible to the secretary of the Air Force and the chief of staff for formulating policy supporting air, space, irregular warfare, counterproliferation, homeland security, weather and cyber operations. As the Air Force operations deputy to the Joint Chiefs of Staff, the general determines operational requirements, capabilities and training necessary to support national security objectives and military strategy.

General Field was commissioned in 1979 after graduating from the U.S. Air Force Academy. He has commanded the 421st Fighter Squadron at Hill Air Force Base, Utah; the USAF Weapons School at Nellis AFB, Nev.; the 8th Fighter Wing at Kunsan Air Base, South Korea; and the 1st Fighter Wing at Langley AFB, Va. He has also deployed as Commander, 332nd Air Expeditionary Wing, Balad AB, Iraq. The general served on two major command staffs as well as the Joint Staff. Prior to his current assignment he was the Commander, U.S. Forces Japan, and Commander, 5th Air Force, Yokota Air Base, Japan.

General Field is a command pilot with more than 3,400 flying hours in the F-16 and the F-22A.

EDUCATION

1979 Bachelor of Science degree, U.S. Air Force Academy, Colorado Springs, Colo.
1984 Squadron Officer School, by correspondence
1985 USAF Fighter Weapons Instructor Course, Nellis AFB, Nev.
1986 Master's degree in business administration, Golden Gate University, Calif.
1993 Command and General Staff College, Fort Leavenworth, Kan.
1998 Air War College, Maxwell AFB, Ala.

ASSIGNMENTS

1. July 1979 - July 1980, student, undergraduate pilot training, Williams AFB, Ariz.

2. October 1980 - May 1981, student, F-16 Replacement Training Unit, Hill AFB, Utah
3. May 1981 - December 1983, F-16 squadron pilot and instructor pilot, 430th Tactical Fighter Squadron, Nellis AFB, Nev.
4. January 1984 - December 1984, F-16 instructor pilot, 80th Tactical Fighter Squadron, Kunsan AB, South Korea
5. January 1985 - May 1985, student, USAF Fighter Weapons Instructor Course, Nellis AFB, Nev.
6. May 1985 - May 1987, weapons and tactics officer and F-16 instructor pilot, 430th Tactical Fighter Squadron, Nellis AFB, Nev.
7. May 1987 - July 1990, F-16 instructor pilot, academic instructor and flight commander, USAF Fighter Weapons School, Nellis AFB, Nev.
8 August 1990 - June 1992, advanced medium-range air-to-air missile and F-22 action officer, Tactical Air Command, Langley AFB, Va.
9. June 1992 - June 1993, student, Army Command and General Staff College, Fort Leavenworth, Kan.
10. July 1993 - June 1994, Chief, Standardization and Evaluation, 388th Fighter Wing, Hill AFB, Utah
11. June 1994 - June 1995, operations officer, 34th Fighter Squadron, Hill AFB, Utah
12. June 1995 - July 1997, Commander, 421st Fighter Squadron, Hill AFB, Utah
13. August 1997 - June 1998, student, Air War College, Maxwell AFB, Ala.
14. July 1998 - May 2000, executive officer to Commander, U.S. Air Forces in Europe, Ramstein AB, Germany
15. May 2000 - April 2001, Commandant, USAF Weapons School, Nellis AFB, Nev.
16. May 2001 - May 2002, Commander, 8th Fighter Wing, Kunsan AB, South Korea
17. June 2002 - May 2003, Assistant Deputy Director, Political-Military Affairs for Europe (J5), Joint Staff, the Pentagon, Washington, D.C.
18. June 2003 - June 2005, Deputy Director, Politico-Military Affairs for Western Hemisphere (J5), Joint Staff, the Pentagon, Washington, D.C.
19. June 2005 - May 2007, Commander, 1st Fighter Wing, Langley AFB, Va.
20. July 2007 - July 2008, Commander, 332nd Air Expeditionary Wing, Joint Base Balad, Iraq
21. July 2008 - February 2009, Vice Director for Strategic Plans and Policy, Joint Staff, the Pentagon, Washington, D.C.
22. February 2009 - October 2010, Senior Military Adviser to the U.S. Special Representative for Afghanistan/Pakistan, the Pentagon, Washington, D.C.
23. October 2010 - July 2012, Commander, U.S. Forces Japan, and Commander, 5th Air Force, Pacific Air Forces, Yokota Air Base, Japan
24. July 2012 - present, Deputy Chief of Staff for Operations, Plans and Requirements, Headquarters U.S. Air Force, Washington, D.C.

SUMMARY OF JOINT ASSIGNMENTS
1. June 2002 - May 2003, Assistant Deputy Director, Political-Military Affairs for Europe (J5), Joint Staff, the Pentagon, Washington, D.C., as a colonel
2. June 2003 - June 2005, Deputy Director, Politico-Military Affairs for Western Hemisphere (J5), Joint Staff, the Pentagon, Washington, D.C., as a colonel
3. July 2008 - February 2009, Vice Director for Strategic Plans and Policy, Joint Staff, the Pentagon, Washington, D.C., as a major general
4. February 2009 - October 2010, Senior Military Adviser to the U.S. Special Representative for Afghanistan/Pakistan, the Pentagon, Washington, D.C., as a major general
5. October 2010 - July 2012, Commander, U.S. Forces Japan, and Commander, 5th Air Force, Pacific Air

Forces, Yokota Air Base, Japan, as a lieutenant general

FLIGHT INFORMATION
Rating: Command pilot
Flight hours: More than 3,400
Aircraft flown: F-16 and F-22A

MAJOR AWARDS AND DECORATIONS
Distinguished Service Medal
Defense Superior Service Medal
Legion of Merit with oak leaf cluster
Bronze Star Medal
Meritorious Service Medal with three oak leaf clusters
Air Medal with three oak leaf clusters
Aerial Achievement Medal with oak leaf cluster
Air Force Commendation Medal with oak leaf cluster

OTHER ACHIEVEMENTS
2011 Eugene M. Zuckert Award for Outstanding Management Achievements by a Department of the Air Force Manager

EFFECTIVE DATES OF PROMOTION
Second Lieutenant May 30, 1979
First Lieutenant May 30, 1981
Captain May 30, 1983
Major May 1, 1990
Lieutenant Colonel Feb. 1, 1995
Colonel March 1, 2000
Brigadier General June 1, 2005
Major General July 2, 2008
Lieutenant General Oct. 25, 2010

(Current as of November 2012)

DOCUMENTS SUBMITTED FOR THE RECORD

MARCH 26, 2014

Final // Rev 5.0

RESPONSE TO

REQUEST FOR INFORMATION

ON

DEPARTMENT OF THE NAVY'S AVIATION PROCUREMENT PROGRAMS

PROVIDED

TO THE

TACTICAL AIR AND LAND FORCES

SUBCOMMITTEE

OF THE

HOUSE ARMED SERVICES COMMITTEE

MARCH 26, 2014

1. Discussion of the validated 1,240 DoN Aircraft Strike-Fighter force structure inventory DoN Requirement and the projected peak inventory shortfall through 2025.

The 1,240 aircraft strike-fighter force is the projected DoN inventory needed to support the anticipated operational demand through the 2024 timeframe. The Navy inventory requirement of 820 aircraft supports 40 active duty Strike Fighter Squadrons composed of 440 aircraft, and two reserve squadrons with 20 aircraft. In order to maintain the operational aircraft, support aircraft are required for aviator training, flight test, attrition reserve and the depot pipeline. This inventory projection is estimated based on historical averages and assumes 100 percent squadron entitlement (no productive ratio reductions), service life of F/A-18E/F aircraft is 9,000 flight hours, and F/A-18A-D aircraft are extended to 9,000 flight hours (with 150 aircraft reaching 10,000 flight hours). This inventory projection does not account for potential future efficiencies gained from TACAIR Integration (TAI). Both services remain committed to TAI.

The Marine Corps TACAIR requirement is 420 aircraft. To meet operational demands, commitments, and force structure requirements the Marine Corps will have 18 active and two reserve squadrons. Integral to our current force structure reductions, our tactical aviation squadrons were restructured to optimize the support they provide to the Marine Air Ground Task Force (MAGTF). The Marines increased their flexibility and responsiveness by increasing the number of 16 aircraft F-35 squadrons (from seven to nine) thereby enabling tactical flexibility for simultaneous expeditionary afloat and ashore operations with current and future employment models. A total of 254 aircraft: nine active squadrons of 16 F-35B aircraft; five active squadrons of 10 F-35B aircraft; four active squadrons of 10 F-35C aircraft; two reserve squadrons of 10 F-35B aircraft; two training squadrons of 25 F-35B aircraft; and 10 F-35C aircraft in support of Navy and Marine Corps Fleet Replacement Squadron (FRS) training. Additionally, there are six F-35B aircraft for test and evaluation, and 70 (58 F-35B, 12 F-35C) Backup Inventory Aircraft (BAI) and 30 (25 F-35B, 5 F-35C) Attrition Reserve (AR) aircraft. The inventory requirement is based on detailed projected and historical operational analysis, optimization of the Joint Strike Fighter (JSF) multi-mission capabilities, complete legacy TACAIR replacement by the F-35, and expected improvements in reliability, maintainability and survivability.

The DoN TACAIR shortfall is the amount of aircraft by which the force structure demand exceeds the inventory of aircraft available for tasking. To keep pace with the issue and provide analytical rigor to decision makers, DoN utilizes the Inventory Forecasting Tool (IFT) to project the combined effects of transition plans, attrition, and pipeline requirements on total strike fighter aircraft inventory. The IFT is updated in conjunction with annual budget submissions to provide a forecast of strike fighter inventory compared to requirements. The shortfall associated with the Fiscal Year 2015 President's Budget shortfall is assessed as manageable. The Strike Fighter Shortfall

(SFS) is currently predicted to peak at approximately 35 aircraft in Fiscal Year 2023. The projected shortfall remains manageable primarily as a result of decreased F/A-18E/F utilization rates; life-extensions for F/A-18A-D aircraft as a result of successful completion of the High Flight Hour (HFH) inspections and repair; and proactive service life management by the type commander on an aircraft-by-aircraft basis.

The Strike Fighter Shortfall is projected to fluctuate throughout the next 20 years. To date, the DoN has been able to mitigate its shortfall with the successful execution of its F/A-18A-D HFH inspection and repair program, and a reduction in utilization rates across the F/A-18A-F fleet. The continued efforts of the Naval Aviation Enterprise (NAE) will further define necessary actions required to manage aging F/A-18 A-D aircraft, address discovery of potentially greater than expected fatigue and corrosion, and ensure required availability of aircraft until JSF Fleet Introduction.

Our Navy and Marine Corps continue to adjust transition plans as F-35C procurement ramps are flattened. F-35B will replace the Marine Corps' AV-8B and F/A-18A-D aircraft. The last active Marine F/A-18 squadron is scheduled to transition in 2029 and the current Marine F/A-18 reserve squadron will not receive F-35Bs until Fiscal year 2030. Sustainment and relevancy funding is imperative to maintain the requisite operational capability of the F/A-18A-D and the AV-8B throughout the transition to the F-35.

2. A discussion of the service life assessment program being conducted to evaluate the feasibility of extending the service life of the F/A-18E/F to 9,000 and 12,000 flight hours and a description of the funding currently contained in the fiscal year 2015-2019 future years defense plan for such program

The F/A-18E/Fs have flown approximately thirty-five percent of the total flight hours available at the 6,000 hour limit and this will not be adequate to meet operational commitments out to 2035. As a result, the three-phased F/A-18E/F Service Life Assessment Program (SLAP) commenced in 2008 will last through 2018. Its goal is to analyze fleet actual usage versus structural test data to identify the feasibility of extending F/A-18E/F service life from 6,000 flight hours to 9,000 flight hours via a follow on Service Life Extension Program (SLEP). The Fiscal Year 2015 President's Budget includes a request for $13.8 million in RDT&E and an additional $74.3 million throughout the FYDP, to support the F/A-18E/F SLAP requirement. One of the F/A-18E/F SLAP goals is to define the necessary inspections and modifications required to achieve 9,000 flight hours. Current SLAP methods would allow feasibility studies to assess an F/A-18E/F service life to 12,000 flight hours. Other SLAP goals relate to increasing total landings, arrested landings and catapults beyond currently defined life limits. Phase A, which developed methodologies to be used in assessing airframe, flight controls, and subsystems, is complete. Phase B constitutes a majority of the SLAP analysis activities and as analysis is completed will feed into SLEP extension activities.

The F/A-18E/F SLAP is incorporating lessons learned from the F/A-18A-D analysis. The F/A-18E/F SLAP was started sooner in its life cycle than the F/A-18A-D SLAP, and encompasses the entire weapon system vice just the airframe. The F/A-18E/F SLAP also has the advantage of having a third lifetime of test cycles completed on certain test articles providing detailed information on high fatigue areas early in the program. The Service Life Management Program (SLMP) philosophy has also been applied to the F/A-18E/F fleet much sooner in its lifecycle than the F/A-18A-D, which will optimize Fatigue Life Expended (FLE), flight hours and total landings so that they all converge at approximately the same time, which align aircraft service life with fleet requirements.

3. Provide an update on the three phases of legacy F/A-18A-D airframe, major subsystems and avionics service-life assessment and extension programs, and a discussion regarding the estimated costs, implementation risks, schedule, and depot capability in executing these programs.

The F/A-18A-D SLAP showed that the airframe can fly to 10,000 hours with a combination of modifications and inspections to maintain airworthiness. The inspection results to date have matched the previously briefed models. The F/A-18A-D aircraft have been kept operationally relevant through upgrades.

SLEP goals of 10,000 flight hours will likely involve wholesale replacement of aircraft structure (center barrel, inner wings, etc.) as well as repairs and inspections. Squadron commanders manage each aircraft's service life (flight hours, wing root fatigue, landings, cats/traps) to ensure full utilization of available service life. The progress of the Service Life Management plan (SLMP) is reviewed periodically at the three-star level via the Naval Aviation Enterprise (NAE) process.

The F/A-18A-D SLEP Fiscal Year 2015 President's Budget requests $55.7 million which fully funds the requirement. The SLEP cost estimates have not changed from previous years. The F/A-18A-D SLEP effort has utilized a phased approach since inception. This approach addresses the most critical airframe requirements first to ensure timely fielding of priority inspections and modifications. This approach reduces both airworthiness and cost risks and allows for future program trade space to mitigate potential program-wide delays.

To meet fleet requirements prior to the completion of SLEP Phases A-C the F/A-18A-D airframe requires a suite of High Flight Hour (HFH) inspections designed to extend the service life beyond 8, 000 FHs. HFH inspections have been ongoing for several years. The HFH inspection has been and continues to be a necessary effort to assess the material condition and airworthiness of the aging F/A-18 A-D fleet and to meet resourcing requirements as aircraft reach 8,000 hours. The HFH suite continues to be revised as a result of completed SLAP and SLEP analysis. 112 aircraft have completed the HFH inspection requirements and 124 are currently in work. Additional pressures are being

felt with an increasing number of F/A-18A-D aircraft reaching 8,000 flight hours and requiring extensive depot time to inspect, repair, and extend service life.

Furthermore, the Master Aviation Plan has F/A-18A-D operational commitments through 2030. To meet this plan a comprehensive SLEP is required to extend the service life of at least 150 F/A-18A-D aircraft to 10,000 flight hours. F/A-18A-D SLEP Phases A and B are complete and SLEP Phase C is now underway. Analysis thus far has identified flight safety critical areas of the airframe that will require inspections and modifications to reach service life goals of 10,000 flight hours. Installation of flight safety critical SLEP modifications began in Fiscal Year 2012 but the final SLEP configuration will not be fully determined until all the non-recurring engineering has been completed in late Fiscal Year 2016. Overall, the SLEP Phase C effort is on schedule and is anticipated to complete in late Fiscal Year 2016.

The DoN is conducting SLEP inspections/repairs at seven locations including: NAS Lemoore, Lemoore, CA; NAS North Island, San Diego, CA; NAS Jacksonville, Jacksonville, FL; Boeing, Cecil Field, Jacksonville, FL; MCAS, Miramar, San Diego; MCAS Beaufort, Beaufort, SC; and NAS Oceana, Virginia Beach, VA. While less complex SLEP mods can be done at all sites, major SLEP modifications will be done concurrently during major depot events such as Center Barrel Replacement modifications or during other scheduled maintenance events. These major modifications are planned to be conducted at NAS North Island, San Diego, CA, and NAS Jacksonville, FL, Fleet Readiness Centers (FRC).

In order to maintain warfighting relevancy in a changing threat environment, we will continue to procure and install advanced systems such as Joint Helmet-Mounted Cueing Systems (JHMCS), ALR-67v3, ALQ-214v5, Multi-Function Information Distribution System (MIDS), APG-73 radar enhancements, Advanced Targeting FLIR (ATFLIR) upgrades, and LITENING for the Marine Corps on selected F/A-18A-D aircraft.

Flying aircraft outside their design life is not without risk. In order to mitigate this risk, engineering analysis will continue to ensure our ability to address these discoveries, lessen burdens on the operating forces, and ensure needed aircraft availability. FRCs have challenges to execute the required number of High Flight Hour (HFH) inspections and SLEP modifications due to engineering and material constraints. While these depot throughput challenges continue, FRCs continue to succeed in extending aircraft service life by more than fifty percent. The Fiscal Year 2015 President's Budget requests $55.7 million for the Service Life Extension Program (SLEP).

4. Discussion on the health of the F/A-18A-F, EA-18G and AV-8B fleets.

F/A-18A-F/EA-18G

The F/A-18A-D has been a highly effective aircraft for the Navy and Marine Corps and will continue as such in future conflicts. In order to maintain warfighting relevancy in a changing threat environment, the DoN will continue to procure and install advanced systems on the F/A-18A-D such as Joint Helmet-Mounted Cueing Systems (JHMCS), ALR-67v3, ALQ-214v5, Multi-Function Information Distribution System (MIDS), APG-73 radar enhancements, Advanced Targeting FLIR (ATFLIR) upgrades, and LITENING for the Marine Corps on select F/A-18A-D aircraft. The aircraft was originally designed for 6,000 flight hours, and was extended to 8,000 flight hours by analysis. Extensions beyond 8,000 flight hours require inspections and/or repairs/modifications.

Although the F/A-18A-Ds are out of production, the existing inventory of 618 Navy and Marine Corps aircraft will comprise approximately half of Naval Aviation's TACAIR force structure through 2014. They are scheduled to remain in inventory through 2030. The SLMP continues to monitor and improve the health of the legacy F/A-18A-D fleet through analyses of TACAIR inventories and the management of usage rates at the squadron level. Eighty-five percent of the F/A-18A-D fleet has over 6,000 flight hours and 77 aircraft have flown more than 8,000 flight hours. To meet USN and USMC operational commitments out to 2026 for active squadrons, and through 2030 for USMCR, the DoN will SLEP up to 150 aircraft to extend their service life to 10,000 flight hours and continue HFH inspections.

The F/A-18E/F began Full Rate Production (FRP) in 2000. Eighty nine percent of the total procurement objective has been delivered (516 of 563). Initial Operational Capability (IOC) was achieved in September 2001. The Fiscal Year 2015 President's Budget supports the 16th year of FRP. This installment includes planned procurement of EA-18G as follow-on to EA-6B (F/A-18E/F and EA-18G share a common Boeing production line).

The F/A-18E/F fleet has flown approximately 35 percent of the total flight hours available at the 6,000 hour limit. This will not be adequate to meet operational commitments out to 2035. As a result, the F/A-18E/F SLAP commenced in 2008 and will continue through 2018 with a goal of achieving 9,000 hours.

The EA-18G is a critical enabler in the Joint force, bringing to the fight fully netted warfare capabilities that will provide electromagnetic spectrum dominance in an electro-magnetic maneuver warfare (EMMW) environment. Electronic attack capabilities, both carrier-based and expeditionary, continue to mature with three of sixteen EA-18G squadrons fielded, while we also continue development of the Next Generation Jammer (NGJ) to replace the legacy ALQ-99 Tactical Jamming System. To date, 99 aircraft have

been delivered; this represents seventy two percent of the Inventory Objective of 138 aircraft. FRP was approved November 2009 and IOC was achieved in September 2009. The 10 carrier-based EA-18G squadrons will fulfill the USN requirements for airborne electronic attack; six expeditionary EA-18G squadrons will fill the joint, high-intensity AEA capability required by the Joint Forces Commander previously fulfilled by the USN and USMC EA-6B. EA-18Gs in-service have flown approximately six percent of the 7,500 total flight hours per aircraft and are meeting all operational commitments. To date, three active component Navy expeditionary squadrons, seven of ten carrier based squadrons, and one reserve squadron are in or have completed transition to the EA-18G. The first EA-18G squadron deployed in an expeditionary role in November 2010 in support of Operation New Dawn (OND) and redeployed in March 2011 in support of Operation Odyssey Dawn (OOD)/Operation Unified Protector (OUP) combat operations. The first carrier-based EA-18G squadron deployed on board the USS George H.W. Bush (CVN 77) in May 2011.

AV-8B

The current Marine Corps inventory consists of 134 AV-8B aircraft. This number includes 34 Night Attack and 82 Radar aircraft, 16 TAV-8B trainers, one Day Attack upgrade, and one Center for Naval Aviation Technical Training (CNATT) maintenance trainer. These numbers support six operational squadrons of 14 aircraft each (PMAA of 84). The inventory decline is the result of combat losses in September 2012, at Bastion Airfield, Afghanistan. This attack accounts for the loss of eight AV-8Bs; six destroyed, two damaged. To date, the AV-8B fleet is averaging 11 aircraft out-of-reporting for Planned Maintenance Interval (PMI) and special re-work, with a five-year average of 18.8 percent per year. The inventory decline is the result of the combat losses.
The AV-8B was originally a 6,000-hour airframe. In 2010, PMA-257 transitioned to a Fatigue Life Expended (FLE) model that more accurately measures actual stress history on individual airframe components, enabling the airframe to fly beyond 6,000 hours. Fleet average for all three single-seat variants of the AV-8B Harrier is 29 percent FLE. The AV-8B was originally scheduled to stop flying in 2012. Sub-contractors and vendors divested manufacturing lines of AV-8B material in anticipation of the 2012 sundown. Delays in the procurement of the Joint Strike Fighter (JSF), coupled with the service life limits of the F/A-18A-D, and recent changes in the Marine Corps' TACAIR transition order necessitated the extension of the AV-8B to avoid a TACAIR inventory shortfall.

This increased timeline for the AV-8B has resulted in an increasing number of component obsolescence issues. An issue that will affect service life is aircraft components that enter obsolescence or reach end of service life before the airframe's planned FLE reaches 100 percent. Due to expected supply shortfalls, the DoN purchased 57 GR-9 aircraft, 38 MK-107 engines, parts supply, and support equipment in 2011. The GR-9 buy was meant to fill a supply gap allowing NAVSUP immediate access to supply inventory, to develop long term sustainment strategies and give industry time to re-

develop parts production lines to support the AV-8B until transition to the F-35 JSF is complete. To date, over 32,000 parts exceeding $35 million have been used from the GR-9 buy. The purchase had an immediate impact in reducing supply backorders. However, a reduction in demand signal from the GR-9 and other lifetime-type buys may cause additional reduction in sub vendors and supply contractors.

The AV-8B continues to be deployed in support of operational contingencies. Each Marine Expeditionary Unit (MEU) deploys with embarked AV-8Bs. The AV-8B, equipped with LITENING targeting pods and a video downlink to ROVER ground stations, precision strike weapons, and beyond visual range air-to-air radar missiles, has continued to be a proven, invaluable asset for the MAGTF and joint commander across the spectrum of operations. During the first half of Fiscal Year 2015 the AV-8B will receive the H6.1 Operational Flight Program enabling full integration of the Generation 4 LITENING targeting pod. During 2015, the program will also continue work on the H6.2 Operational Flight Program to integrate Federal Aviation Administration (FAA) compliant RNP/RNAV capability and correct additional software deficiencies identified through combat operations. As an out-of-production aircraft, the AV-8B program will continue its focus on sustainment efforts to mitigate significant inventory shortfalls, maintain airframe integrity, achieve full FLE, and address reliability and obsolescence issues of avionics and subsystems. The Airborne Variable message Formal (VMF) terminals will be installed in AV-8Bs to replace the current digital-aided close air support (CAS) technology. Additional efforts include tactical datalink and sensor improvements in support of operational contingencies until transition to the F-35.

5. Discussion of current and future capabilities inherent in the F/A-18E/F that do not meet future Combatant Commander operational requirements for strike-fighter aircraft.

The F/A-18E/F is a highly capable aircraft designed to meet and defeat today's threats with growth potential for the future. The F/A-18E/F provides increased combat radius and endurance, greater weapons payload and increased survivability over Legacy F/A-18A-D aircraft. Block II (Lot 26 and up) aircraft, with the APG-79 Active Electronically Scanned Array (AESA) radar system and low observable technology, have extended air-to-air detection range and are capable of performing well in the range of threat environments, up to "anti-access". Block II Super Hornet includes upgraded avionics and sensors, some of which cannot be retrofitted to a Legacy F/A-18A-D aircraft. The Super Hornet will be a complementary platform on the nation's carrier decks with the F-35C into the 2030s and will meet current and projected requirements, with planned investments in the Fiscal Years 2015-2019 and beyond. These investments in F/A-18E/F flight plan increments, to include upgraded avionics, sensors and networks, will ensure relevancy against emerging and future threats.

JSF and F/A-18E/F capabilities are complementary, with an ideal balance of versatility, lethality, survivability, and capacity that will pace the threat and support foreseen Carrier Strike Group mission requirements through 2030. The timely delivery of JSF is critical to our ability to meet operational demands and to maintain the desired mix of strike fighter aircraft on our carrier decks.

6. The Assistant Secretary's evaluation of the F-35 program and major risks to the cost, schedule or performance of the program and the F-35 program's ability to meet initial and full operational capability dates.

The F-35 is essential to the future of Naval Aviation and the DoN remains firmly committed to both the F-35B and F-35C variants of the aircraft. We are closely monitoring all F-35 program aspects - inclusive of development, production, and sustainment to ensure the capability represented by this program is obtained at the lowest cost and at the earliest possible date.

The F-35 program continues steady progress toward meeting cost, schedule and performance requirements and commitments. We are paying particular attention to the ability to meet the IOC requirements and dates for both the Marine Corps and Navy, and to do so with an aircraft that is affordable to procure and sustain.

The overall composite unit cost of the aircraft continues to decrease with unit cost below Selected Acquisition Report (SAR) projections, and within planned budget planning factors. Projected sustainment costs remain a concern. In addition to revisiting all of the assumptions that have gone into our sustainment cost models, we are working with the JPO, and the Air Force, on discreet actions to reduce operating and sustainment costs. These activities include Level of Repair Analysis (LORA) for aircraft components; review of the business case for organic vs. commercial support in repairs, modifications, and engineering services; squadron manning; training requirements; pursuing Red Air alternatives; and focused effort on RAM improvements. Cost of the development program has stabilized, but is not without risk – largely tied to software development and aircraft testing.

Overall risk to meeting IOC for both the Marine Corps (2015) and the Navy (2019) is assessed as moderate. Risk is largely in the areas of software development, aircraft modifications, and system availability. The Marine Corps requires Block 2B software for their IOC configuration. There is currently approximately one month of risk associated with meeting the planned completion dates for both Block 2B developmental test completion and software delivery to operational squadrons. The Navy requires Block 3B software for their IOC configuration. The risk associated with meeting the planned FY18 completion of test for Block 3B is assessed at 4-6 months. Because of the serial nature of the software development process, any unexpected delays in Block 2B software delivery/maturity will have an impact to Block 3F delivery.

Meeting the Marine Corps IOC also requires modification of aircraft to bring them up to the required hardware configuration. The modifications are largely known; funding is in place; however, the schedule for modification has very little allowance for uncertainty or discovery. While technical risk is low, the schedule will require continued management over the next 12-18 months.

Meeting the IOC requirement for either service requires having sufficient numbers of fully trained pilots. While showing steady improvement over the last six months, aircraft reliability and maintainability rates remain less than what is required to meet the training plans. With improvements in the Autonomic Logistics information System (ALIS), increased utility of Prognostic Health Management (PHM), lessening of inspection requirements as additional flight and qualification testing is completed, and concerted effort in addressing mission degraders, the trend in availability is expected to improve.

7. Status of the F/A-18E/F and EA-18G production line and the Assistant Secretary's evaluation of the fighter production and engineering industrial base as the F/A-18 production line begins to close and prospects for future competition in fighter and attack aircraft;

The Boeing production line will remain open with the planned procurement of 21 EA-18G in Fiscal Year 2014 for delivery in 2016, with parts of the production line for manufacture of long lead items starting to shut down in Fiscal Year 2014. Although AP funding was received in the Fiscal Year 2014 Appropriation Act for 22 additional F/A-18E/F aircraft, the Navy does not have a requirement for additional F/A-18E/F aircraft, and therefore will be unable to obligate this funding.

8. Discussion of the known risks and issues specifically related to the DoN regarding the development, fielding and deployment of the Autonomic Logistics Information System (ALIS) for sustaining the F-35 as it relates to maintenance and logistics operations.

The F-35 has been developed with an Autonomic Logistics Information System (ALIS) that is being used to support test, training, and operational squadrons today. As with any new system, there has been a learning curve, and functionality and performance are continuously improving. Examples of current issues include limitations in the Prognostic Health Management (PHM) system, maintenance fault code adjudication, and system latency. Two significant improvements are currently under development:

- ALIS Deployment Suitability: The current ALIS baseline is too large to embark and disembark from an L-Class ship. Efforts have been ongoing to improve the deployment suitability of the existing ALIS baseline hardware design. Based on these efforts a deployable version of ALIS, referred to as ALIS Squadron Operational Unit version 2 (SOU-V2), is scheduled for delivery in April 2015 to support F-35B IOC.

- Full Integration of Propulsion System Sustainment into ALIS: Currently the Propulsion System is managed by the original equipment manufacturer (OEM) using a contractor operated sustainment application. This is a recognized interim operating procedure until an integrated solution is introduced with a future ALIS release.

9. Provide an update on the V-22 procurement program and contractor performance, and performance of the MV-22 during Operations Enduring Freedom.

The V-22 program continues to perform extremely well in the field and in production. In 2013, industry delivered 41 V-22s; 34 Marine MV variants and seven Air Force CVs. These aircraft were procured under a successfully executed Multi-Year Procurement (MYP) contract. In all, 175 V-22s were procured through MYP-I at a savings of over $400M when compared to single-year procurement. Capitalizing on this success, in 2013 the program awarded a second MYP contract which will procure 101 V-22s, 93 MV variants and eight CV variants, for fiscal years 2013 through 2017. MYP-II is forecast to save nearly $1B over single-year procurements.

The V-22's strong performance in the field continues to be demonstrated on a daily basis. In October 2013, the combined MV and CV fleet surpassed the 200,000 flight hour milestone and it is on pace to be one of the safest of any DoD aircraft dating back to the 1960s. As of March 12, 2014, 219 of the Program of Record's 360 aircraft have been delivered to the Marine Corps. The aircraft has been continuously deployed since 2007, and as of mid-2013 all Marine Expeditionary Units (MEU) are equipped with MV-22s. MV-22 squadrons supporting Operation Enduring Freedom (OEF) in Afghanistan posted a 2013 average mission capable rate of 80%.

The effectiveness and survivability of this revolutionary, first-of-type MV-22 Osprey tilt-rotor has been repeatedly demonstrated across the globe. Whether based ashore or afloat, the aircraft has given commanders unprecedented operational reach. In OEF, the aircraft has sustained battle damage due to enemy fire on numerous occasions, and in every instance has been able to continue safe flight to landing in secure areas. Because of its unique capability set, in April 2013 MV-22s were assigned to the newly formed Special Purpose Marine Air Ground Task Force – Crisis Response (SPMAGTF-CR) AFRICOM which deployed to Morón, Spain to provide a quick reaction force in response to theater requirements. In May 2013, the first MV-22 was delivered to Marine Helicopter Squadron One (HMX-1) in support of the Presidential mission. By year's end, seven MV-22s were at HMX-1 and had participated in multiple successful deployments. More recently, in November 2013, Okinawa based MV-22s quickly self-deployed to the Republic of the Philippines in support of Operation Damayan, delivering relief supplies and evacuating citizens from typhoon ravaged areas.

10. Update on the H-1 procurement program and contractor performance.

The Fiscal Year 2015 President's Budget requests $44.1 million in RDT&E,N for continued product improvements and $859.7 million in APN for 26 H-1 Upgrade aircraft: 15 UH-1Y and 11 AH-1Z. The program is a key modernization effort designed to resolve existing safety deficiencies and enhance operational effectiveness of the H-1 fleet. The 85 percent commonality between the UH-1Y and AH-1Z will significantly reduce life-cycle costs and the logistical footprint, while increasing the maintainability and deployability of both aircraft. The program will provide the Marine Corps with 349 H-1 aircraft through a combination of new production and a limited quantity of remanufactured aircraft.

The H-1 Upgrades Program is replacing the Marine Corps' UH-1N and AH-1W helicopters with state-of-the-art UH-1Y "Venom" and AH-1Z "Viper" aircraft. The new aircraft are fielded with integrated glass cockpits, world-class sensors, and advanced helmet-mounted sight and display systems. The future growth plan includes a digitally-aided, close air support system designed to integrate these airframes, sensors, and weapons systems together with ground combat forces and other capable DoD aircraft. Integration of low-cost weapons such as the Advanced Precision Kill Weapon System II (APKWS II) has increased lethality while reducing collateral damage.

The UH-1Y aircraft achieved IOC in August 2008 and FRP in September 2008. The "Yankee Forward" procurement strategy prioritized UH-1Y production in order to replace the under-powered UH-1N fleet as quickly as possible. The AH-1Z completed its operational evaluation (OT-II3C) in June 2010, and received approval for FRP in November 2010. The AH-1Z achieved IOC in February 2011. As of February 27, 2013, 127 aircraft (90 UH-1Ys and 37 AH-1Zs) have been delivered to the Fleet Marine Force; an additional 58 aircraft are on contract and in production. The last two aircraft from Lot 7 will deliver in March/April 2014. Lot 8 deliveries are progressing on or ahead of schedule.

In December 2011, to address existing attack helicopter shortfalls, the Marine Corps decided to pursue an all AH-1Z Build New (ZBN) procurement strategy and leave AH-1W airframes in the inventory rather than removing them from service to begin the remanufacture process. The transition to an all ZBN airframe strategy began with Lot 10 (Fiscal Year 2013) as reflected in the current USMC program of record. The aircraft mix is 37 remanufactured AH-1Z and 152 ZBN aircraft. The total aircraft procurement numbers remain the same at 160 UH-1Ys and 189 AH-1Zs for a total of 349 aircraft.

11. Update on the H-60S and H-60R program and contractor performance.

The Navy Helicopter force structure is based on the CNO-approved Helicopter Master Plan.

The MH-60S and MH-60R production program continue to deliver on-cost and on-schedule with squadron transitions continuing through 2016 under Multi-Year Contract (MY2) with Lockheed Martin (Mission Systems & Common Cockpits) and MY8 with Sikorsky (Airframe). When transition is complete, there will be 38 Navy Seahawk squadrons with 275 MH-60S's and 251 MH-60R's.

To date, 245 of the 275 MH-60S's have been delivered to the fleet providing enhanced capabilities in the primary mission areas of Mine Warfare and Surface Warfare including Fast Attack Craft/Fast In-shore Attack Craft (FAC/FIAC) threat response capabilities. Secondary mission areas include Combat Search and Rescue, Support to Special Operations Forces, Vertical Replenishment, logistics support, personnel transport and Medical Evacuation.

MH-60S Carrier Air Wing squadrons began their transition in 2007 and will be complete in 2016. Expeditionary squadrons completed their transition to the MH-60S in 2004.

MH-60S Organic Airborne Mine Counter measure capability (OAMCM) is aligned with Littoral Combat Ship Mine Countermeasures Mission Package (LCS MCM MP) IOC in Fiscal Year 2015. OAMCM systems for the MH-60S include the Airborne Laser Mine Detection System (ALMDS) and the Airborne Mine Neutralization System (AMNS).

MH-60S Armed Helicopter capability reached IOC in June 2007 and currently is capable of employing Hellfire Missiles, M-198 20MM Fixed Forward Firing Gun, GAU-21/M-240 crew served door mounted machine guns and 2.75" unguided rockets. Advanced Precision Kill Weapon System (APKWS II) guided 2.75" rockets will EOC in 2014.

The MH-60S Test Program consists of numerous system upgrades and Pre-Planned Product Improvements including: Airborne Mine Countermeasures (AMCM); Armed Helicopter FAC/FIAC Defense; and a Service Life Assessment Program.

Additionally, 180 of the 251 MH-60R's have been delivered to the fleet providing enhanced capabilities in the primary mission areas of Undersea Warfare and Surface Warfare, including FAC/FIAC threat response capabilities. Secondary mission areas include Naval Surface Fire Support, Search and Rescue, Vertical Replenishment, Logistics Support, Personnel Transport and Medical Evacuation.

MH-60R Carrier Air Wing squadrons began their transition in 2008 and will be complete in 2016. Expeditionary squadrons began their transition in 2012 and will be complete in 2015.

The MH-60R is designed to support Carrier and Expeditionary Strike Groups, Cruisers, Destroyers, and LCS in Anti-Submarine Warfare (ASW) and Surface Warfare (SUW). It enables sea control and provides forward-deployed capabilities to defeat area-denial strategies, allowing joint forces to project and sustain power.

MH-60R ASW improvements include upgrades to the Airborne Low Frequency Sonar (ALFS) reliability and APS-153 Automatic Radar Periscope Detection and Discrimination (ARPDD) capability. ASW weapons include the MK-46 and MK-54 torpedoes.

For the SUW mission, the MH-60R is equipped with Hellfire Missiles and GAU-21/M-240 crew served door mounted machine guns. IOC for 2.75" rockets is planned for 2015.

The MH-60R Test Program consists of numerous system upgrades and Pre-Planned Product Improvements including: Automatic Radar Periscope Detection and Discrimination (ARPDD); CDL Hawklink/ SAU-07-000; Digital Rocket Launcher (DRL) with Advanced Precision Kill Weapon System (APKWS II); Helicopter Infra-Red Suppression System (HIRSS); and Instrument Landing System (ILS).

12. **An update on the CH-53K program and contractor performance.**

The Fiscal Year 2015 President's Budget requests $573.2 million RDT&E,N to continue Engineering and Manufacturing Development (EMD) of the CH-53K. Since completing its Critical Design Review in July 2010, the CH-53K program commenced system capability and manufacturing process demonstration, has nearly completed assembly of the first five test aircraft; one Ground Test Vehicle (GTV) and four Engineering Development Model (EDM) aircraft. In December 2013, the program entered Developmental Test. The GTV has successfully completed numerous ground test requirements, to include the "Bare Head Light-Off." The program is currently on schedule to execute its first flight by the end of 2014. During Fiscal Year 2015, the program will continue to execute developmental test flights, deliver the final EDM, and start assembly of System Demonstration Test Article (SDTA) aircraft which will be production representative aircraft utilized for Operational Test.

As is typical in developmental programs, discovery of technical issues at the system level and component/subsystem level has delayed some component qualifications leading to test schedule delays. As a result, the program is behind on subassembly deliveries and qualification test completions required to maintain the aggressive program schedule. The

program is actively pursuing plans to resolve these issues, recover schedule and execute first flight by the end of 2014.

13. **An update on the efforts related to the V-22 program concerning the redesign, qualification, manufacturing and fielding of more reliable parts and subsystems and how it relates to planned goals for reducing current operations and maintenance costs.**

Component and subsystem redesign is an integral part of the MV-22 program's plan for improving readiness and reducing operating costs. At the platform level, the MV-22 continues to meet its requirement for reliability as set forth in the acquisition documentation. Additionally, the MV-22 program continues aggressive efforts to improve component performance by analyzing inherent component reliability using the Integrated Logistics Support Management System (ILSMS), and focusing on aircraft readiness and operating cost. This disciplined, repeatable process has identified key components for improvement. Since July 2009, multiple component improvements have been incorporated and validated via on-aircraft performance with Mean Flight Hour Between Removal (MFHBR) improvements ranging from 284 percent to over 445 percent in 2013. Even as the program's flight hour requirements continue to grow and additional mission sets have been added to the fleet's requirements, the MV-22's component reliability rates are improving. Overall, the average mission capable rate has increased 14 percent from 2010-2013.

The MV-22 Cost Per Flight Hour (CPFH) Reduction Team has been reducing costs through a four pillared approach targeted at improving maintenance practices, maintenance planning, repair capabilities and contract strategies. The team works closely with the reliability and maintainability (R&M) teams to incorporate the improved components noted above. From Fiscal Year 2010 through 2013, these efforts have yielded a 14 percent reduction in MV-22 CPFH, which will equate to billions of dollars in cost avoidance over the life cycle of the aircraft.

14. A summary of all Class A, B and C aviation-related safety issues, including recent mishaps, trends, and analysis occurring within the past year.

Naval Aviation Summary (Navy & Marine Corps) - The table below provides a summary of all Class A, B & C Flight mishaps from October 2012 through March 12, 2014. The rates are based on mishaps per 100,000 flight hours.

YEAR	Flight Hours	Class A	Class A Rate	Class B	Class B Rate	Class C	Class C Rate
FY 13	1,084,016	14	1.29	15	1.38	81	7.47
FY 14	474,653	8	1.69	11	2.32	35	7.37

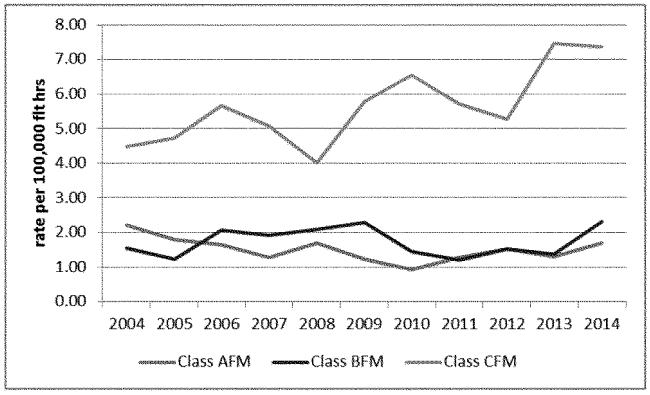
The most recent DON Flight Class A Mishaps include:

- 01 March 2014 (Fallon, NV): A USMC F/A-18C on loan to NSAWC crashed during training in the range complex. One fatality.
- 17 January 2014 (NAS Lemoore, CA): F/A-18E sustained brake fire on aborted takeoff. No fatalities.
- 15 January 2014 (off of the Virginia Capes): F/A-18E crashed during ULT training flight. No fatalities.
- 08 January 2014 (off of the Virginia Capes): MH-53E crashed while conducting mine warfare operations. Two survivors and three fatalities.
- 16 December 2013 (Japan): MH-60S executed autorotation due to loss of tail rotor drive. No fatalities.
- 15 December 2013 (Atlantic & Environs): Unmanned MQ-8B crashed at sea.
- 04 November 2013 (NAS Pensacola, FL): T-45C crashed prior to runway after reporting an engine flameout. No fatalities.
- 24 October 2013 (Patuxent River, MD): Unmanned MQ-8B sustained a hard landing from a hover following takeoff during a test flight.

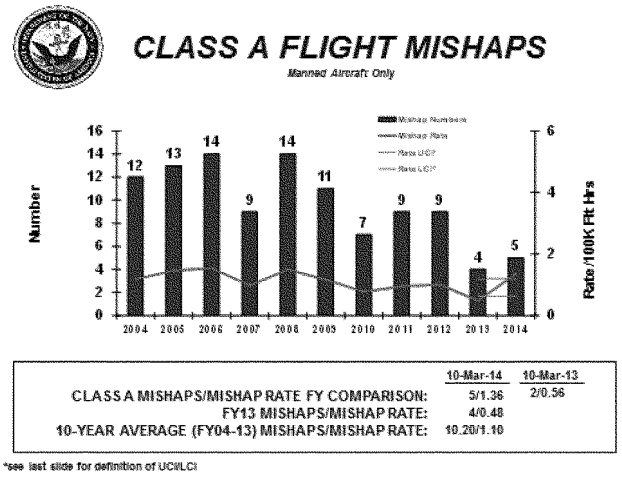
There are no recent DoN Class A Flight Related Mishaps (FRM) or Aviation Ground Mishaps (AGM).

**** Space Intentionally Left Blank ****

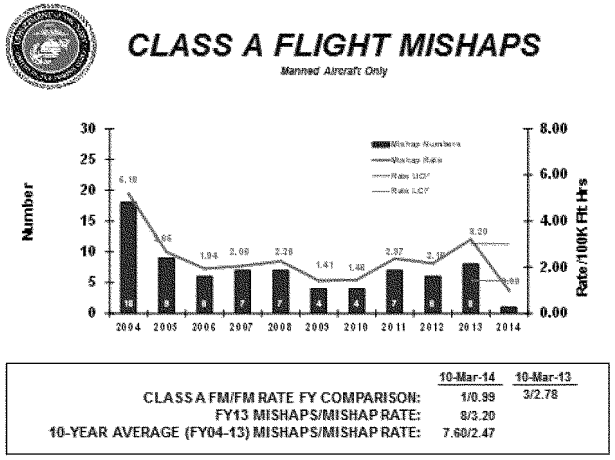
DON Historical Mishap Rate Trend per 100K Flight Hours per Mishap Class (A.O. March 12, 2014)



**** Space Intentionally Left Blank ****



Class A Manned Flight Mishap Historical Data for U.S. Navy



Class A Manned Flight Mishap Historical Data for U.S. Marine Corps

15. Status of the MQ-4C Triton program and changes since last year.

The Fiscal Year 2015 President's Budget postpones the MQ-4C Triton (formerly known as BAMS or Broad Area Maritime Surveillance) LRIP from Fiscal Year 2015 to Fiscal Year 2016. The Fiscal Year 2015 President's Budget requests $498 million in RDT&E,N to continue Triton SDD and $37.5 million APN for procurement of long-lead materials for the first lot of LRIP aircraft. Due to software integration delays during initial testing, the program experienced a year-long delay to the start of flight testing. A program replan has been completed and the program remains executable within current funding levels. Triton will start establishing five globally-distributed, persistent maritime ISR orbits beginning in Fiscal Year 2017. MQ-4C Triton test vehicles have completed 12 test flights as of February 25, 2014 and are on schedule to begin developmental testing later this year. This rigorous integrated flight test program will support Milestone C planned for Fiscal Year 2016. The MQ-4C Triton is a key component of the Navy Maritime Patrol Reconnaissance Force. Its persistent sensor dwell, combined with networked sensors, will enable it to effectively meet ISR requirements in support of the Navy Maritime Strategy.

The Navy procured two Air Force (USAF) Global Hawk Block 10 UAS in Fiscal Year 2004 for demonstration purposes and to perform risk reduction activities for the Triton UAS Program. In April 2011, Navy accepted three additional Block 10 aircraft from the USAF to be utilized as spare parts assets. These aircraft, the Broad Area Maritime Surveillance Demonstrators, or BAMS-D, have been deployed to CENTCOM's AOR for over five years. BAMS-D recently achieved over 10,000 flight hours in support of CENTCOM ISR tasking. These demonstration assets are adequate to cover all Navy needs through Fiscal Year 2016.

16. A list of all DON aircraft program funding shortfalls that are currently in the fiscal year 2015 through 2019 future years defense plan, as submitted, that would not permit full program scope execution as currently planned.

In accordance with Secretary of Defense direction, the Office of the Secretary of Defense will be submitting all Service Unfunded Priority Lists via separate correspondence.

QUESTIONS SUBMITTED BY MEMBERS POST HEARING

MARCH 26, 2014

QUESTIONS SUBMITTED BY MR. TURNER

Mr. TURNER. GAO's most recent report points out that software delays may impact software deliveries and could hinder the delivery of expected warfighting capabilities—first to the Marine Corps and then possibly to the Air Force and Navy as well. Please describe the mission system software difficulties that the program has experienced, and explain what the program is planning to do/or is in the process of doing to mitigate the impacts of those difficulties. What are the impacts, if the program is not able to deliver all of the expected warfighting capabilities to the Marine Corps by July 2015?

General BOGDAN. The F–35 Joint Program Office (JPO) does not fully agree with all of the conclusions made by the GAO in their recent report, "Problems Completing Software Testing May Hinder Delivery of Expected Warfighting Capabilities." The program is making steady progress and is fundamentally on the 2011 baseline plan, with moderate confidence in the Block 2B/3i software delivery schedules. There is additional risk with 3F as it is dependent upon the successful and timely completion of blocks 2B/3i.

Software continues to be the program's number one technical risk; however, the program has a track record of overcoming difficulties related to software development. These difficulties include technical challenges implementing multi-level security in Block 1B, delays in maturing and integrating Block 2A software, and burning down outstanding technical debt from earlier software blocks. Over the past two years, the program has implemented significant changes in how system software is developed, lab tested, flight tested, measured, and controlled. The program is starting to see the positive effects of these changes. As part of these process changes, the program has:

- Created a Capability Block Plan that provides an integrated roadmap to define when individual capabilities are integrated into each software block.
- Instituted a Block Review Board, led by the government, to track all configuration, capability, and schedule changes to software development.
- Directed a more robust Systems Engineering/Technical Review process for all development work to provide greater knowledge and defined decision gates to determine when configurations are mature enough to proceed to the next phase. This includes assessing the impact and corrective actions for issues identified against the defined Block Capabilities and missions.
- Developed tools to define the relationship of each planned software capability to the overall mission sets, providing insight into the impact to mission effectiveness resulting from any potential shortfalls in capability maturity.

In addition to implementing process changes, the program has made considerable strides in maturing the on-board software as a whole and retiring risks from earlier software blocks to establish a healthy foundation going forward. Specifically, the technical debt from previous software blocks will essentially be negated as we enter into Block 3 development and integration. The program has also recovered from software delays in fielding Block 2A LRIP 5 software and has executed the Block 2B plan largely to the baseline. Lastly, the program has successfully demonstrated the rehosting of Block 2A and early Block 2B capability on the TR–2 hardware required for Block 3i LRIP 6 aircraft.

It is the JPO's plan to deliver all Block capabilities at the required maturity levels to meet the Marine Corps, Air Force, and Navy Initial Operational Capability (IOC) dates. Anomalies that may have an impact to planned IOC mission sets are either being corrected or assessed with the stakeholders for acceptability. It is my assessment that delivery of Block 2B-capable aircraft for USMC IOC is tracking to a July 2015 date and software is not expected to be the limiting factor.

Mr. TURNER. GAO and others have identified affordability as a significant challenge for the F–35. The total financial commitment needed for the program's operation and support costs are still estimated at around $1 trillion, and GAO notes that acquisition costs over the coming decades will average $12.6 billion a year. What is the program doing to ensure that this program is affordable in the long-term?

General BOGDAN. Affordability continues to be one of my top priorities. Over the years, my team and I have been successful at shifting the cost risk from being fully

absorbed by the government to a more equitable split between the government and the contractors. This has incentivized the contractors to become participants in driving down costs, without compromising capability or quality. We have been successful in ensuring that lot over lot, the cost of the aircraft continues to come down, and I expect this trend to continue. Although the cost is coming down, it has not come down as quickly as I would like, and I am taking strategic steps with my team to deliver an F–35A in Fiscal Year 2019 between $80–85 million in FY19 dollars. Operation and Sustainment (O&S) is one of the main cost drivers over the lifecycle of the program and it is imperative that we get it right. Some of the initiatives to address O&S affordability include:

- Established an F–35 Cost War Room, which includes representatives from prime contractors, with the objective of identifying program-wide initiatives to drive down overall program costs. They are currently examining 48 opportunities to drive down or remove costs from the program.
- Executing a Level of Repair Analysis study to define the most cost effective repair enterprise for the U.S. and International Partners. The outcome of this study will help us determine the optimum repair structure. We expect the study to be available for review by the U.S. Services in the third quarter of this year.
- Completed a second Business Case Analysis in April 2014 to help inform the most cost effective Regional sustainment construct. This analysis will determine the best-value sustainment solution across a range of alternatives using a consistent set of baseline requirements and ground rules. We expect to have the analysis confirmed and finalized within the third quarter of this year.
- Established an actively-managed and funded Reliability and Maintainability (R&M) Improvement Program with the objective of redesigning components to improve R&M from both a hardware and software perspective. The intended outcome will be increased component reliability and decreased maintenance burdens.

We continue to press forward with continuous improvement/producibility efforts in order to reduce the labor hours associated with aircraft production. We are examining methods of addressing Diminishing Manufacturing Sources to introduce competition in the supply chain. We are taking a systematic approach to reduce aircraft prices below the normal production learning curves and are addressing supply chain arrangements to reduce material costs. The procurement quantity from year to year is a significant factor in achieving lower procurement costs. In the last two years, our International Partners and the U.S. Services have delayed purchases to future years, delaying the timeline for realizing unit cost targets. Over the next few years, I expect Foreign Military Sales customers to increase their quantities, which will make up for some of the delayed purchases by the U.S. Services and our International Partners, but if we continue to see the current trend then it will further delay how quickly we are able to reduce the procurement cost of the aircraft.

Mr. TURNER. GAO notes that the F–35 program office estimate for operation and support costs is around $200 billon lower than the $1 trillion estimated by OSD. They also note that the major driver in the difference between the two estimates is the use of different inflation assumptions. Please explain how the program came to its most recent estimate. To what extent do you believe that the program's estimate is more reliable than the OSD estimate?

General BOGDAN. In the 2012 System Acquisition Report (SAR), the OSD Cost Assessment and Program Evaluation (CAPE) and F–35 Joint Program Office (JPO) estimate for Operational and Support (O&S) costs differed in excess of $200 billion. There were two significant factors that led to this difference. First, the CAPE did not update the O&S cost estimate for SAR–12 but instead used the estimate from SAR–11, whereas, the F–35 JPO did update the O&S cost estimate for SAR–12 utilizing the latest data available. Secondly, the F–35 JPO and the CAPE used different inflationary assumptions which accounts for the large difference in SAR–12 Then Year Dollar (TY$) estimates. For SAR–13, the CAPE did update their O&S estimates and reductions were seen in both the Base Year Dollar (BY$) and TY$ estimates.

O&S Estimates	**SAR 12 BY12$**	**SAR 12 TY$B**	**SAR 13 BY12$**	**SAR 13 TY$B**
CAPE O&S	$617.0	$1113.3	$597.8	$1016.5
JPO O&S	$549.2	$856.7	$541.1	$916.8
Difference	*$129.5*	*$256.6*	*$56.7*	*$99.7*

In SAR–13, the TY$ difference between the CAPE and JPO's O&S estimates was reduced from $256.6 billion to $99.7 billion. The F–35 JPO O&S estimate differs from the CAPE O&S cost estimate primarily in 4 areas—reliability, depot overall, government/contractor manpower and F–35A fuel consumption:

1. Reliability: The CAPE used the Director, Operational Test & Evaluation's (DOT&E) estimate for Reliability and Maintainability (R&M) based on 8,500 fleet hours. The F–35 JPO used the most current R&M forecasts of steady state reliability, informed by approximately 12,000 fleet hours, for their estimate. The CAPE position for this element is 4% higher than the JPO position.

2. Depot Overhaul: the CAPE used historical data from AV–8B and F/A–18C aircraft and assumed each depot event was a discreet action and summed these actions for a total cost estimate. The F–35 JPO used historical data from F–15, F–16, and F–22 aircraft and bundled certain depot events, modeled after the strategy within the F–18 aircraft community. The CAPE position for this element is 71% higher than the JPO position.

3. Government/Contractor Manpower: The CAPE used the 2011 manpower estimate which was based on high level manpower requirements allocated at a 20/80 government/contractor split for most elements. The F–35 JPO used the Fiscal Year 2013 latest manpower estimates as represented in the current sustainment strategy based on a discrete assessment of government and contractor requirements for future sustainment work. The CAPE position for this element is 17% higher than the JPO estimate.

4. Fuel Consumption: The CAPE used a revalidated Air Force fuel burn rate that did not change from SAR–12. The F–35 JPO used a lower burn rate that was initially validated in the Air Force Weapon System Planning Document. Future SARs will ensure that the CAPE and F–35 JPO will use the same fuel burn rates. The CAPE estimate for this element is 5% higher than the JPO.

I am confident in the F–35 JPO estimate for O&S costs. Incorporating the same technical baseline for these 4 areas would have resulted in less than 2% difference between the CAPE and F–35 JPO O&S cost estimates.

Mr. TURNER. GAO notes that the program will be challenged to meet its unit cost affordability targets by 2019, as required by OSD. How does the program plan to meet its unit cost targets, if at all, and what steps are being taken to achieve those targets? If the targets are not met not, what is the impact and what action(s) does the program plan to take?

General BOGDAN. Based on the program's current production and procurement profile, I am moderately confident that we will meet the Department of Defense's (DOD) unit price target of $83.4M in Fiscal Year (FY) 2019. Under the current procurement profile, we will deliver an F–35A in FY19 between $80–85 million in FY19 dollars. For the F–35B and F–35C, I am moderately confident that we will meet the unit cost targets or be within a few percentage points of the target.

Affordability continues to be one of my top priorities and my team and I continue to strive to not only meet the DOD unit price targets but to realize unit costs below the target. Over the years, my team and I have been successful at shifting the cost risk from being fully absorbed by the government to a more equitable split between the government and the contractors. This has incentivized the contractors to become participants in driving down costs, without compromising capability or quality. We have been successful in ensuring that lot over lot, the cost of the aircraft continues to come down, and I expect this trend to continue. Although the cost is coming down, it has not come down as quickly as I would like and I am currently pursuing several initiatives to make the F–35 weapon system more affordable and bring down the unit cost of the aircraft.

Operation and Sustainment (O&S) is one of the main cost drivers over the lifecycle of the program and it is imperative that we get it right. Some of the initiatives to address O&S affordability include:

- Established an F–35 Cost War Room, which includes representatives from prime contractors, with the objective of identifying program-wide initiatives to drive down overall program costs. They are currently examining 48 opportunities to drive down or remove costs from the program.
- Executing a Level of Repair Analysis study to define the most cost effective repair enterprise for the U.S. and International Partners. The outcome of this study will help us determine the optimum repair structure. We expect the study to be available for review by the U.S. Services in the third quarter of this year.
- Completed a second Business Case Analysis in April 2014 to help inform the most cost effective Regional sustainment construct. This analysis will determine the best-value sustainment solution across a range of alternatives using a consistent set of baseline requirements and ground rules. We expect to have the analysis confirmed and finalized within the third quarter of this year.

- Established an actively-managed and funded Reliability and Maintainability (R&M) Improvement Program with the objective of redesigning components to improve R&M from both a hardware and software perspective. The intended outcome will be increased component reliability and decreased maintenance burdens.

We continue to press forward with continuous improvement/producibility efforts in order to reduce the labor hours associated with aircraft production. We are examining methods of addressing Diminishing Manufacturing Sources to introduce competition in the supply chain. We are taking a systematic approach to reduce aircraft prices below the normal production learning curves and are addressing supply chain arrangements to reduce material costs.

The procurement quantity from year to year is a significant factor in achieving lower procurement costs. In the last two years, our International Partners and the U.S. Services have delayed purchases to future years, delaying the timeline for realizing unit cost targets. Over the next few years, I expect Foreign Military Sales customers to increase their quantities, which will make up for some of the delayed purchases by the U.S. Services and our International Partners, but if we continue to see the current trend then it will further delay how quickly we are able to reduce the procurement cost of the aircraft.

Mr. TURNER. Your recent report emphasizes the risks posed by continuing delays in mission systems software testing, and notes that those delays could limit the capabilities the Marine Corps receives at the time it plans to declare its initial operational capability. If the program continues to experience software related delays, what additional impacts do you believe this could have on the program?

Mr. SULLIVAN. [The information was not available at the time of printing.]

Mr. TURNER. In addition to software, GAO's most recent report identifies a number of other "technical" risks that the program has faced during development. What progress have you seen the program making in these technical risk areas; and which areas, if any, do you believe still pose risks?

Mr. SULLIVAN. [The information was not available at the time of printing.]

Mr. TURNER. F–35 operation and support costs—which are still estimated at around $1 trillion over the life of the fleet—represent a potentially significant financial obligation for the Air Force and Navy, and have been deemed "unaffordable" by the Department. What steps do you think the program can take to drive operating and sustainment costs down?

Mr. SULLIVAN. [The information was not available at the time of printing.]

Mr. TURNER. You mentioned in your written testimony that F–35 sustainment costs remain a concern. What actions are the F–35 Joint Program Office and the Department of the Navy taking to reduce F–35 life-cycle costs?

Admiral GROSKLAGS. The Department of the Navy and the F–35 Program Executive Office (PEO) are continuing to reduce the Operations and Support (O&S) costs. As a result of our efforts to date and as reported in the 2013 Selected Acquisition Report (SAR), the CAPE O&S estimate from SAR 2012 to SAR 2013 reduced by approximately three percent (in BY2012 dollars). The Department and PEO have several initiatives underway that have substantial O&S cost savings potential:

1. The Services are reviewing basing assumptions, squadron size, and training requirements. As an example, the training mission profile has been refined resulting in reduced estimates for F–35C fuel usage.
2. The Services and PEO are conducting a level of repair analysis that fully explores all three levels of maintenance to improve readiness and reduce repair and turnaround costs. The study is expected to conclude in May.
3. The PEO has established a sustainment cost war room with active participation from Lockheed Martin and Pratt & Whitney. The team is focused on lifecycle affordability. Some of the initiatives include aligning periodic maintenance and planned modification, aligning engine data to maintenance planning, pursuing Red Air alternatives in training squadrons, reusing support equipment from legacy programs, optimizing the number of pilot fit facilities and warehousing, and optimizing low-observable maintenance practices.
4. The PEO has a focused effort on reliability and maintainability improvements. The top reliability degraders have been identified and the PEO is conducting business case analysis for each to determine the best investment opportunities for improved reliability and/or reduced cost.
5. The PEO is conducting a business case analysis to evaluate alternative lifecycle sustainment strategies comparing the baseline full contractor logistics support construct to a spectrum of fully organic or a hybrid mix of contractor and organic support. Initial results have identified several cost drivers in both labor (organic rates are lower than contractor rates) and material (original equipment manufacturer mark-up). The study will also consider investment costs

such as data rights, additional manning resources, training, and spares inventory.

Mr. TURNER. The budget request postpones the MQ–4C Triton low-rate initial production from fiscal year 2015 to fiscal year 2016. What steps is the Navy taking to mitigate the effects of this delay on the Navy's requirement for intelligence, surveillance, and reconnaissance?

Admiral GROSKLAGS. Postponement of MQ–4C Triton low-rate initial production from Fiscal Year (FY) 2015 to FY 2016 resulted in a one-year fielding delay for MQ–4C Triton Multi-INT (signals intelligence capability) to FY 2020. In accordance with the National Defense Authorization Act of 2011 and the Navy's Maritime Intelligence, Surveillance, Reconnaissance, and Targeting (MISR&T) Transition Plan, a delay in fielding MQ–4C Triton Multi-INT required a corresponding sustainment of legacy MISR&T platforms. The Navy's Special Projects Aircraft (SPA) squadron will operate through FY 2019 and the Navy's Fleet Air Reconnaissance (VQ) squadron will operate through FY 2020. These one-year extensions to planned retirement dates will ensure adequate MISR&T assets exist to meet Global Force Management requirements until MQ–4C Triton Multi-INT is fielded in sufficient numbers.

Mr. TURNER. You mention in your testimony that meeting the Marine Corps F–35B IOC will require modification of aircraft to bring them up to the required hardware configuration and that the schedule to do so is tight. What steps is the Navy taking to mitigate the risk that all required modifications to the F–35B fleet will be done on time?

Admiral GROSKLAGS. The Marine Corps and the F–35 Program Executive Officer (PEO) are working together to meet aircraft modification requirements in support of F–35B Initial Operational Capability (IOC). The technical issues are understood; it is a management issue that is receiving the appropriate attention. The Marine Corps and PEO are building and constantly refining an integrated modification schedule to incorporate several air vehicle and propulsion modifications that will be performed at various locations. Most significant is the planned increase in aircraft throughput capacity at the Fleet Replacement Center-East in Cherry Point, NC. We may also look to increase throughput capacity and/or work at Yuma, AZ, as well as other locations to ensure requirements for F–35B IOC are met. The current planned timelines for throughput capacity increase and modification completion are executable, but leave a small margin before impacting F–35B IOC.

Mr. TURNER. Your written testimony notes that the Marine Corps strike fighter shortfall is 20 aircraft in 2023. Do you believe that the Marine Corps may experience an elevated operational risk in the 2020's if the predicted strike fighter shortfall comes to fruition? Please describe why you believe the Marine Corps faces this elevated operational risk and what the Department of the Navy is doing to mitigate those risks.

General SCHMIDLE. The Marine Corps does not believe it will experience an elevated operational risk in the 2020's.

With the pending certification of the Naval Synchronization Tool Set and ongoing use of the Continuous Process Improvement Program (CPI Blackbelt projects), Marine Aviation is able to proactively plan aircraft utilization, and efficiently manage the service life of its remaining AV–8B and F/A–18A–D aircraft. In addition, Marine Corps Aviation is implementing force management and scheduling strategies targeted at greatly reducing risk throughout the transition to the F–35.

The Department of the Navy (DoN) continues to manage aircraft service life of each aircraft at the operational level in order to achieve the maximum allowable service life limits prior to its sundown. The continued engineering and Service Life Extension Program (SLEP) kit development over the FYDP will ensure there is sufficient TACAIR inventory to meet DoN requirements through the transition to the F–35.

Mr. TURNER. We understand that Marine aviation is on a path toward a distributed Airborne Electronic Attack system of systems including both unmanned and manned assets. Please describe the number and types of unmanned and manned assets that will be part of this system.

General SCHMIDLE. The Marine Corps anticipates a future operating environment comprised of advanced Electromagnetic Spectrum (EMS) Warfare and digital threats. The Marine Corps will address these threats with the Marine Air Ground Task Force Electronic Warfare (MAGTF EW) concept. This approach will leverage all available transmitters and sensors across the MAGTF on both manned and unmanned platforms. A coordination cell comprised of EMS, Cyber, Operations, Intelligence, and Communications subject matter experts (SME) will collectively integrate collections and effects-delivery efforts in real-time. The Marine Corps will no longer depend on a large single-purpose platform, since the low-density, platform-centric approach has proven insufficient for meeting capacity requirements. MAGTF

EW systems will be capable of networking with Marine and Joint assets spanning the air, ground, space, and cyber domains.

Any current or future airframe employed in support of MAGTF operations will maintain the ability to host advanced EMS payloads in support of integrated Spectrum and Cyber Operations. The Intrepid Tiger II Electronic Warfare pod, currently deployed aboard Marine Expeditionary Units (MEUs), is one such payload example. The types and numbers of these platforms and systems will be based on Service capacity and future mission requirements. These platforms specifically include future Group 4/5 Unmanned Aircraft Systems (UAS), RQ–21A, F–35B, AV–8B, F/A–18A++/C/D, AH–1W/Z, though any aircraft in the inventory will be capable of serving as a host platform in the distributed capability network. As the future linchpin of Marine Corps Tactical Aviation, the F–35B will contribute by reducing counter-integrated air defense systems (C–IADS) requirements due to its inherent Spectrum survivability, and adding decisive networked attack and exploitation capabilities in EMS regions of significance.

While the Marine Corps is currently achieving combat success with EMS payloads on manned platforms in theater and adding such capability to deployed Marine Expeditionary Units, the application of airborne Spectrum Warfare will increasingly gravitate towards UAS platforms. Marine Corps Aviation is actively exploring options to expand its UAS fleet with more capable platforms to provide the requisite size, weight, and power to perform a combination of standoff and penetrating Spectrum Attack operations. Coupling new UAS employment concepts with emerging EW payloads offers the Marine Corps a unique opportunity to counter a complex IADS. This approach will enable deliberate growth in the Spectrum Warfare portfolio and will include communications-based targets, RADAR-based targets, directed-energy (DE) and LASER targets. Additionally, the Marine Corps is exploring the viability and readiness of advanced (medium-high Technology Readiness Level) Spectrum Attack technologies to augment baseline Intrepid Tiger 2 capability for future incorporation.

Mr. TURNER. If the Department of Defense is forced to accept sequestration-level budgets between fiscal year 2016 and 2023, what affect will that have on the capability and capacity of Navy and Marine Corps' strike fighter fleets to achieve the requirements of the National Defense Strategy?

General SCHMIDLE. The DoN is focused on maintaining a strike fighter fleet which possesses the capability and capacity to win decisively. Sequestration-level budgets will force the DoN to balance future capabilities and capacity within the limits of the Budget Control Act, challenging the ability of our strike fighter fleets to maintain an advantage against possible future threats and increasing risk in meeting National Defense Strategy requirements.

Sequestration will reduce current modernization funding levels and severely limit further F/A–18A–F capability upgrades. Sequestration will also increase the risk to achieving initial operating capability goals, and ultimately, full fielding of the Joint Strike Fighter program of record. Initial operational capability of the F–35B in FY15 will not be affected but may increase risk to follow-on software development. Additionally, any reduction to Service Life Management funding levels will negatively impact Marine Corps F/A–18A–D capacity throughout the F–35 transition. Lastly, sequestration will adversely impact strike fighter readiness across all of Naval aviation.

Mr. TURNER. Like the Air Force, Naval air forces require inventories of precision air-to-air and air-to-ground munitions. Please describe which inventories and short of requirements and provide the committee a list of those munitions and amounts above the budget request that could be executed in fiscal year 2015.

General SCHMIDLE. Navy supports the Fiscal Year 2015 President's Budget (PB15) as submitted.

If additional funds were made available, the following precision air-to-air and air-to-ground Naval munitions, listed in alphabetical order, are short of their inventory requirement. The amount of funding above the PB15 budget request that could be executed in fiscal year 2015 and the respective quantities to be procured with that funding is as follows:

AARGM: $24.3M of WPN for an additional 46 missiles.

AMRAAM 120–D: $62M of WPN for an additional 83 missiles.

GP Bombs: $93.7M of PANMC for the additional components below:

—JDAM tail kits 500 lbs ($15.3M, QTY 625)

—JDAM tail kits 2,000 lbs ($38.0, QTY 27,576)

—GBU–10 ($3.6M, QTY 201)

—BLU–109 Bomb Body ($21.7M, QTY 678)

—FMU–143 fuze ($27.5M, QTY 7624)

Rockets: $100M of PANMC for the additional components below:

—LAU–61 G/A Digital Rocket Launcher ($0.256M, QTY 4)
—MK 66 MOD 4 Rocket Motor ($24.3M, QTY 57,460)
—WGU–59/B APKWS II Guidance and Control Section ($74.3M, QTY 2,552)
—WTU–1/B Inert Warhead ($1.14M, QTY 15,985)

Mr. TURNER. If the Department of Defense is forced to accept sequestration-level budgets between fiscal year 2016 and 2023, what affect will that have on the capability and capacity of Navy and Marine Corps' strike fighter fleets to achieve the requirements of the National Defense Strategy?

Admiral MANAZIR. The DoN is focused on maintaining a strike fighter fleet which possesses the capability and capacity to win decisively. Sequestration-level budgets will force the DoN to balance future capabilities and capacity within the limits of the Budget Control Act, challenging the ability of our strike fighter fleets to maintain an advantage against possible future threats and increasing risk in meeting National Defense Strategy requirements.

Sequestration will reduce current modernization funding levels and severely limit further F/A–18A–F capability upgrades. Sequestration will also increase the risk to achieving initial operating capability goals, and ultimately, full fielding of the Joint Strike Fighter program of record. Additionally, any reduction to Service Life Management funding levels will negatively impact Marine Corps F/A–18A–D capacity throughout the F–35 transition. Lastly, sequestration will adversely impact strike fighter readiness across all of Naval aviation.

Mr. TURNER. Like the Air Force, Naval air forces require inventories of precision air-to-air and air-to-ground munitions. Please describe which inventories and short of requirements and provide the committee a list of those munitions and amounts above the budget request that could be executed in fiscal year 2015.

Admiral MANAZIR. Navy supports the Fiscal Year 2015 President's Budget (PB15) as submitted.

If additional funds were made available the following precision air-to-air and air-to-ground Naval munitions, listed in alphabetical order, would be augmented in numbers. The amount of funding above the PB15 budget request that could be executed in fiscal year 2015 and the respective quantities to be procured with that funding is as follows:

NAVY 2015 Unfunded Priority List:
AMRAAM 120–D: $96.3M of WPN for an additional 83 missiles.
Munitions above budget request that could be executed in fiscal year 2015:
AARGM: $24.3M of WPN for an additional 46 missiles.
GP Bombs: $102.7M of PANMC for the additional components below:
—JDAM tailkits 500 lbs ($15.3M, QTY 625)
—JDAM tailkits 2,000 lbs ($38.0M, QTY 1,378)
—Laser Guided Bomb tailkits ($3.6M, QTY 201)
—BLU–109 Bomb Body ($21.7M, QTY 678)
—FMU–139 Fuze ($24.1M, QTY 7624)
Rockets: $100M of PANMC for the additional components below:
—LAU–61 G/A Digital Rocket Launcher ($0.256M, QTY 4)
—MK 66 MOD 4 Rocket Motor ($24.3M, QTY 57,460)
—WGU–59/B APKWS II Guidance and Control Section ($74.3M, QTY 2,552)
—WTU–1/B Inert Warhead ($1.14M, QTY 15,985)

Mr. TURNER. You mention in your testimony that the Navy does not have a requirement for additional F/A–18E/F aircraft. Does the Navy have a requirement for additional EA–18G aircraft?

Admiral MANAZIR. On-going study indicates the likelihood of increasing threat capability, and additional Growlers on the flight deck will provide a significant advantage in a high end conflict. The Growler will soon be the only DOD tactical AEA aircraft in the joint force inventory and is required to support both 4th and 5th generation strike fighter aircraft. With legacy jamming pods or Next Generation Jammers the EA–18G provides precise control of a broad range of the electromagnetic spectrum (EMS) to create sanctuaries for the Joint force, denying enemy access to portions of the EMS.

The current total procurement of 138 aircraft can source the Navy mission. The addition of 22 EA–18Gs listed on the Navy's Unfunded Requirements List will be used to augment existing Navy squadrons in the execution of the joint AEA missions allowing carrier squadrons to deploy with seven aircraft vice their current complement of five aircraft per squadron. The additional aircraft will reduce risk in meeting operational demand for multi-ship tactics and the potential increased need for AEA. As nations expand their use of the EMS, the ability to perform the AEA mission will become more critical and buying additional EA–18Gs in FY15 reduces risk in our ability to meet future AEA demand.

Mr. TURNER. You mention in your testimony an Air Force concern about the aerospace industrial base that supports the engineering design and development of tactical fighter aircraft. You note that when production of the F/A–18 and F–15 ends, there will be only one prime contractor producing tactical aircraft. What steps is the Air Force taking in the FY 2015 and in the future years defense program to address this concern? When you say, "we are accepting risk that some elements of the current aerospace industrial capacity may atrophy," what specific skills are likely to atrophy and what would be the impact on the Nation's aerospace programs? How do the Air Force long range strike aircraft program and the Navy's unmanned carrier-launched airborne surveillance and strike (UCLASS) programs affect the industrial base necessary to develop and produce tactical fighter aircraft?

Dr. LAPLANTE. The current fiscal environment has forced the Air Force to make some very tough choices. In broad terms, the Air Force has chosen capability over capacity. The ripples from these decisions extend from the immediate force structure through our base infrastructure to the aerospace industrial base. Just as the Air Force lacks both the budget availability and flexibility to maintain the size and structure of current forces while we modernize, we lack the immediate mission requirements and resources to sustain the defense sector of the aerospace industrial base as configured. Elements of the aerospace industrial base have already taken some steps in terms of reorganizations and workforce adjustments to better position themselves in this new fiscal arena. The lack of demand from the Air Force will contribute to a reduced capacity, affecting all skills, from engineering through production.

The fact that there will be only one tactical aircraft, the F–35, in production for the foreseeable future is a reality the Air Force has neither the operational requirements nor the financial resources to alter. However, the Air Force is able to use other elements of the budget to sustain and develop some industrial base capabilities at a reduced capacity. For example, Air Force research and development investments in advancing the state of the art in turbine engine technology contribute to the support of engineering and design teams of two contractors. Other aircraft programs, whether manned or not, also serve to sustain engineering design, integration, and production capabilities. Moreover, the Air Force has continuing needs for our current aircraft. As we maintain and modernize these legacy aircraft, we place demands on the industrial base for engineering design and production to sustain our operational capabilities.

The defense sector of tomorrow's aerospace industrial base will be similar to tomorrow's Air Force—it will be capable but no longer have today's capacity.

Mr. TURNER. Last year the Air Force mentioned that depot delays would require the grounding of some of the affected aircraft, and that sequestration cuts to Air Force modernization will impact every one of the Air Force's investment programs, creating inefficiencies, raising unit costs, and delaying delivery of valued capabilities to warfighters in the field. The Air Force also noted that the Fiscal Year 2014 budget request would not enable full recovery of warfighting capability, capacity and readiness and that additional resources would be required.

As we are into execution of the FY 2014 budget this year, what steps has the Air Force taken to mitigate these affects? Did you get the additional resources required in fiscal year 2014 to make the fighter fleets whole again?

Dr. LAPLANTE. The Air Force did not develop its Fiscal Year 2013 weapon system sustainment (WSS) program factoring in sequestration, so when "sequestered" impacts were added to the WSS Fiscal Year 2013 President's Budget funding position, unfunded requirements (a bow wave) resulted for aircraft and engine programmed depot maintenance. Initially, the impact was assessed to be approximately 24 aircraft and 84 engines. The impacts were mitigated by: Military Augmentation, House Resolution 933, the Consolidated and Further Continuing Appropriations Act of 2013, buybacks, reduction in the number planned furlough days, and relief from overtime limitation. Fiscal Year 2013 ended with an unfunded bow wave of 13 aircraft and 19 engines.

The Fiscal Year 2014 Bi-Partisan Budget Act impact, including a $500 million buyback, eliminated the sequestration bow wave with depot production back on track with minor impacts to due dates and flow days for aircraft and engine. Exchangeable production was diminished during the furlough period but is recovering. Impacts were offset by shelf shock with full recovery expected in Fiscal Year 2014. All Fiscal Year 2013 deferred aircraft and engines including the fighters were mitigated in Fiscal Year 2014, eliminating the sequestration bow wave.

Mr. TURNER. You mentioned in your written testimony that all three mission areas in the air-to-surface munitions inventory are short of inventory objectives. Those missions are stand-off, direct attack, and penetrator munitions.

Please provide the subcommittee a list of those muntions and amounts that could be increased to the budget request and, if authorized and appropriated, could be executed in fiscal year 2015.

Dr. LAPLANTE. If additional funds were made available, the following Air Force air-to-surface munition procurements could be executed in FY15 up to the quantities indicated. Quantities above the planned FY15 procurement will allow the Air Force to meet inventory objectives sooner.

Joint Direct Attack Munition (JDAM)

To bring production to the contracted maximum capacity of 15,000 tail kits per year, an additional 5,000 JDAM units could be purchased for $147.5M.

Joint Air to Surface Standoff Missile (JASSM)

The FY15 production contract is currently being negotiated with Lockheed Martin. If additional FY15 funds were made available, quantities of Baseline and Extended Range (ER) missiles would be adjusted to maximize ER production while maintaining the most economical unit price within the bounds set by the Request for Proposal (RFP). An additional 16 missiles could be purchased for an additional $19.5M resulting in 100 JASSM-Baseline missiles and 140 JASSM–ER missiles. The planned FY16 procurement brings production to the maximum capacity of 360 missiles per year.

Hellfire

Up to an additional 3,953 Hellfire missiles could be purchased for $411M to bring production to its maximum steady-state capacity of 6,000 missiles per year.

WRM—Ammunition

This mission area includes hundreds of items in several categories. Up to an additional 9,500 bombs (includes 2,000 pound penetrators and 2,000 pound general purpose bombs) could be purchased for $275M; up to 7,500 additional fuzes could be purchased for $15M; and up to 300,000 additional cartridges could be purchased for $15M.

Training Munitions Items

This mission area includes dozens of items in several categories. Approximately 8,000 additional practice bombs could be purchased for $25M in FY15.

Mr. TURNER. We noted that the Combat Rescue Helicopter (CRH) program is currently scheduled for initial operational capability in FY 2021. Will the Air Force be taking risk in its combat rescue mission until the CRH becomes operational?

Dr. LAPLANTE. Given current aircraft attrition projections, a fully funded Ops Loss Replacement (OLR) program will recap the current HH–60G fleet to a program of record of 112 aircraft by Fiscal Year 2018. This will mitigate further risk to the combat rescue mission until the CRH program reaches initial operational capability in Fiscal Year 2021.

Mr. TURNER. If the Department of Defense is forced to accept sequestration-level budgets between fiscal year 2016 and 2023, what affect will that have on the capability and capacity of Air Force strike fighter fleet to achieve the requirements of the National Defense Strategy?

General FIELD. The fiscal constraints imposed by sequestration have forced the Air Force to make difficult choices. All budget decisions, not only in the strike fighter fleet, but also across all Air Force capabilities, are evaluated against planning scenarios directed by the Office of the Secretary of Defense that support the President's Defense Strategic Guidance. Ultimately any decisions the Air Force makes regarding potential aircraft divestment will be based on aligning the Air Force's contribution to fulfilling the Defense Strategic Guidance, while complying with the fiscal constraints imposed by sequestration.

The Air Force is very concerned with recent budget reductions and continues to monitor how these cuts will affect risk. The Air Forces' fighter fleet is approaching 30 years old—the oldest in our history. The Air Force is pursuing modernization programs to extend the service life of our strike fighter inventory. Without service life extensions and capability upgrades, it will be increasingly difficult to meet the defense strategy. Therefore, it is absolutely critical selected fourth generation sustainment and modernization efforts continue as outlined in the FY15 budget request. Additionally, we must procure the F–35 at a rate that ensures we have the capabilities and capacity to ensure success against emerging threats.

Further, Air Force mission success is dependent on our fighter force manning. The Air Force is currently 200 fighter pilots short of the total manning requirement. Our projections indicate this deficit growing to approximately 500 by 2022, excluding any additional sequestration driven impacts on flying training. The shortfall resulted from a series of force reductions and it will take the Air Force many years to reverse this trend and recover. A return to sequestration level funding only exacerbates this problem and extends the number of years required to recover from the fighter pilot shortage.

At the levels requested in the President's budget, the Air Force protects the capabilities required to prevail in the more demanding operational environment in years to come. At sequestration funding levels, it is not possible to budget for an Air Force capable of simultaneously performing all of the missions our Nation expects. We would end up with a force that is less ready, less capable, less viable, and unable to fully execute the defense strategy.

Mr. TURNER. You noted in your written testimony that fiscal constraints have driven force structure divestments of 334 fighters that require the Air Force to "accept near-term risk today to be ready and viable tomorrow." What scenarios are at greatest risk with the reduction of 334 fighters?

General FIELD. To support the National Defense Strategy and meet future threats, the Air Force must continue investments in new capability programs and upgrades to gain and maintain full-spectrum readiness. Budget constraints have forced difficult decisions that reduced fighter force capacity in an effort to rebuild a more ready force and bridge the gap to future force requirements. Reduced fighter force capacity elevates risk in all scenarios. However, these deliberate capacity cuts that focused on single mission part of the fourth generation fleet leave the Air Force with the ability to manage near-term risk in supporting the National Defense Strategy, although significant challenges still exist. Ultimately, the strategy underlying the Presdient's Budget allows the Air Force to balance capability and capacity to win today's fight while acquiring critical capabilities to address future threats.

Mr. TURNER. You mention in your written testimony that the Air Force fighter fleet is approaching 30 years old—the oldest in Air Force history—and that "without service life extensions and capability upgrades, it will not be possible to manage risk." The FY 2015 budget request includes the termination of the F–16 combat avionics programmed extension suite, or "CAPES." How does the termination of CAPES affect risk, and what scenarios are most affected by an F–16 fleet that would not have the CAPES upgrade?

General FIELD. The termination of CAPES increases risk and decreases operational effectiveness in several scenarios, but to remain within fiscal guidance constraints, we had to make difficult trades between force structure investment, readiness, and modernization. We chose to terminate F–16 CAPES because the impact on operational risk was judged to be less than the impact of other higher priority capability upgrades. This budget driven decision likely increases operational risk in the Homeland Defense and highly contested environment scenarios as the F–16 may not be as effective due to the loss of the Airborne Electronically Scanned Array (AESA) radar and an upgraded electronic warfare suite. We recognize this elevated operational risk; however, these decisions remain consistent with our approach to take near-term risk in modernization of legacy systems to ensure future force structure recapitalization.

Mr. TURNER. In your statement you note that when the U–2 is retired, you will not meet the overall demand for high altitude intelligence surveillance and reconnaissance (ISR). What percentage of high altitude ISR demands are met now, and how much less of that requirement will be met with retirement of the U–2?

General FIELD. The requirement for high altitude ISR capability is defined by the Joint Requirements Oversight Council; per the classified definition of conventional wartime high altitude ISR needs, either the U–2 or RQ–4 can meet 100 percent of the force structure requirement for Combat Air Patrols, with a narrow classified exception for the RQ–4.

However, retirement of the U–2 results in the loss of approximately 50 percent of overall high-altitude ISR collection capacity. Combatant Commanders do not specify platforms when submitting annual ISR needs; however, the U–2 historically provides at least half of all high-altitude imagery and signals intelligence products.

Mr. TURNER. What is the status of the Air Force's air-to-air weapons inventory? Are there shortages in the AIM–120 or AIM–9 inventories? If so, please provide additional amounts that could be executed in fiscal year 2015 to address those shortages.

General FIELD. Currently, both the AIM 120 and AIM 9 inventories lag Air Force requirements. Actual inventory requirements are classified and available under separate cover. At this time, the Air Force is not requesting any additional amounts for AIM–120D or AIM–9X procurement above what is presented in the FY15PB. The FY15PB addresses the inventory shortages with an overall increase to Air Force AIM 120D procurement by 103 missiles and AIM 9X Block II procurement by 333 missiles across the FYDP over FY14PB levels. The FY15PB also includes Air Force procurement of an additional 388 AIM 120D and 201 AIM 9X missiles in FY19 and the production lines for both missiles are expected to remain open well into the 2020s.

In the FY15 Opportunity, Growth, and Security Initiative, OSD included a request for $62M in WPN to procure approximately 62 AIM–120D missiles for the Navy in addition to the Air Force's FY15PB request for 200 missiles. The FY15PB already outlines an aggressive Air Force and Navy AIM–120D production profile across the FYDP that balances the inventory shortage with the program's aggressive Diminishing Manufacturing Sources and Material Shortages (DMSMS) efforts. Any increase in FY15 quantities beyond 262 missiles is limited by a depleting stock of missile components impacted by DMSMS issues. Production line introduction of components redesigned to address DMSMS are planned in FY16 and FY18 that will allow production quantities to increase as shown in the FY15PB.

For AIM 9X, the total Air Force and Navy procurement quantities could be increased by a maximum of 168 missiles with an approximate total cost of $67M in FY15.

QUESTION SUBMITTED BY MR. SMITH

Mr. SMITH. When do you propose to standardize your fleet?

General SCHMIDLE. Many different funding sources have been pursued over the past three years to retrofit the first 36 AH–1Z aircraft that are still equipped with the legacy T700–401 engines. Due to competing priorities in this fiscally constrained environment, the engine upgrade has thus far remained unfunded. Marine Aviation continues to explore all avenues of funding for this initiative.

QUESTIONS SUBMITTED BY MR. JONES

Mr. JONES. It is my understanding that when the Marines started the AH1Z and UH1Y program, that the first 36 AH1Zs were built utilizing old engines which were really built for the AH1W and that using those engines have resulted in aircraft that cannot carry a full payload on a hot day and that it also complicates logistical support and results in pilots having to learn two different sets of aircraft limitations. Is this true?

General SCHMIDLE. The first 36 AH–1Zs built were "remanufactured" AH–1Ws that still have the old T700–401 engines installed. These 36 aircraft will have dissimilar engines from the other 313 AH–1Z and UH–1Y aircraft in the Marine Corps' inventory unless retrofitted with new the T700–401C engines. The first 36 AH–1Zs with the 401 engines have 110 less shaft horsepower in each of their two engines. In same environmental conditions (6000 feet and 95 degrees F), the newer 401C configured AH–1Z can carry four additional Hellfire missiles and 100 extra rounds of 20mm while increasing speed by 10%. Single engine performance is even more disparate. In hot temperature, high altitude conditions with heavy payloads, the decreased power of the old 401 engine increases risk during a single engine failure situation.

These 36 aircraft also complicate logistical support across the fleet by requiring separate spare parts, maintenance training and technical publications. Marine pilots do not need to learn two different sets of engine limitations. The temperature limits are the same for the old 401 engines and the new 401C engines. However, the power reduction does pose a pilot awareness issue during standard flight operations at high altitudes, in hot temperatures, and at full payloads, as pilots will need to be aware of the performance reductions of the 36 specific AH–1Z aircraft with 401 engines mixed within the entire AH–1Z fleet including 401C engines.

Mr. JONES. If this is true how much would it cost to upgrade these 36 aircraft and standardize your fleet?

General SCHMIDLE. It will cost $62.7 million to upgrade all 36 AH–1Z aircraft with 72 T700–401C engines in order to standardize the AH–1Z and UH–1Y fleet.

○